



A Ten-Year Development and Welfare Plan for Tanganyika Territory

REPORT BY THE DEVELOPMENT
COMMISSION

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A TEN-YEAR DEVELOPMENT AND WELFARE PLAN FOR

TANGANYIKA TERRITORY

INTRODUCTION

The publication at the end of 1944 of the memorandum entitled "An Outline of Post-War Development Proposals" marked the second stage in the preparation of plans for a long-term development programme for Tanganyika Territory, the first being the report of the Central Development Committee which was published in 1940. It was made clear in the 1944 memorandum that the programme outlined in it should not be regarded as a complete plan for post-war development but rather as a frame-work within which the fulfilment of the various projects might be pursued, subject to any necessary modifications in detail. It was also considered that the memorandum should be taken as a basis for the discussion of the general financial arrangements required to give effect to the programme. Since then some of the projects contained in the memorandum have been finally approved and funds to initiate them have been provided from general revenue, by grant under the Colonial Development and Welfare Act or by allocation from the Agricultural Development Fund. Other schemes have been drawn up to complete the programme and preliminary consultations have been opened with the Colonial Office on the methods by which the various sections of it can be financed. One result of these consultations is that the sum of £5,250,000 has now been allocated to the Territory from the Colonial Development and Welfare Fund towards the cost of the plan, while £3,500,000 has been made available from the same source to finance schemes of an inter-territorial character.

2. At the beginning of this year it was decided to remove the detailed work of preparing plans and other matters connected with development from direct association with the Secretariat and to transfer responsibility for these matters to a separate organization which could pay undivided attention to them. In accordance with this policy a Development Commission has now been appointed consisting of the Chief Secretary as Chairman, a Deputy Chairman and Executive Officer and five Commissioners, all of whom are non-officials. It is intended to give the Commission wide powers and its main functions will be to maintain close contact with the manner in which development projects are being executed, to ensure as far as is possible that the work is expeditiously carried out, and to deal as occasion arises with matters which appear to be impeding progress. The Commission will also be required to keep its finger on the pulse of development generally and to investigate and advise on new projects which come forward for consideration as the approved plan progresses.

3. The first task of the Commission has been to draw up a general and comprehensive plan of development and welfare for the Territory, covering a ten-year period and based on the reports of the Central Development Committee and the Post War Planning Committee. In doing so, full consideration has been given to the Secretary of State's views on the latter report which were communicated to the Governor in his confidential despatch

No. 86 of the 27th April 1945. In that despatch the view was expressed that a disproportionate share of the total cost of the programme had been allocated to social services, public works and buildings, township development, etc., and an insufficient sum to economic development. In this connection the Secretary of State pointed out that the extent to which the Territory could afford the proposed expansion of the social and other services described in the memorandum would depend very largely on the extent to which the economic resources (and—by implication—the taxable capacity of the inhabitants) of the Territory were expanded, and that it was consequently desirable that the expenditure to be undertaken in the immediate future should be weighted on the side of economic development. The Secretary of State also drew attention to the importance of presenting the programme on an integrated basis and suggested that the plan as a whole and, in particular, the rate of execution envisaged for Government building projects should be closely related to the probable labour supply in the Territory and in each area.

4. In preparing this plan every effort has been made by the Commission to cover these points. For example the section dealing with the conservation and development of the natural resources of the Territory has been considerably expanded and now accounts for an appreciable proportion of the total expenditure envisaged, while ample provision has been made for the improvement of communications which are regarded as being an essential prerequisite to further economic development.

5. Due attention has also been paid to the necessity for bringing out the connection between the different parts of the programme and a statement (Appendix B) is included in the report showing the manner in which expenditure on development is related to the needs of each particular Province. Details of population densities are also given to illustrate the extent to which such expenditure is directed towards the areas where it is most required.

GENERAL REMARKS ON THE PLAN

6. A schedule of schemes which go to make up the development plan together with their estimated cost, will be found at the end of the report. Brief notes on the various schemes are attached to the report in the form of appendices.

7. The Commission wishes to emphasize that the plan as now drafted is no more than an outline sketch of the developments proposed in the Territory over the next ten years. In effect it consists of a series of objectives with an approximation of their cost. It must of necessity remain sufficiently flexible to meet changing circumstances and unexpected eventualities. It must also allow for the details of the various projects to be modified so that the results of experience gained may be assimilated in the work as it proceeds. The final details and the ultimate cost of the plan can only be ascertained as it is put into effect and the schemes are progressively reviewed in the light of the results obtained.

8. The estimates given are not final and they will be subject to revision as action develops. In fact it is intended that the whole plan shall consist of a series of ten annual estimates, based on the present proposals but adjusted and amended in the light of experience and in accordance with such modifications of policy as may prove to be desirable. This procedure will also permit the tempo at which the various schemes are carried out to be amended

as circumstances or financial considerations dictate, without losing sight of the final objectives to be achieved. Nor are the schemes as they stand intended to be complete in all their final details. These will be worked out as time goes on and, in all probability, some of the original ideas will require modification, particularly in relation to local conditions. It is also inevitable that many subsidiary schemes will have to be prepared in the next ten years, in accordance with requirements resulting from experience and from further demands and requests which will undoubtedly arise during this period.

9. The plan itself has been made as comprehensive as possible, but many of the constituent schemes consist largely of extensions to existing departmental activities in order to overcome the deficiencies of the past caused by long periods of financial stringency. Such schemes will also provide an opportunity for absorbing modern methods and technique developed as a result of experience gained during the war.

10. Research is a subject which must always be closely linked with development and a number of the schemes included in the plan have an investigational or research aspect. Specific research projects have not, however, been considered by the Commission in view of the fact that they are being drawn up on an inter-territorial basis and will be financed from the centrally controlled portion of the Colonial Development and Welfare Vote which has been earmarked for research purposes. These projects include tsetse, veterinary and agricultural research and proposals for the establishment of a fisheries research organization on an East African basis.

11. The Commission has considered the advisability of making special provision in the plan for social welfare activities, in addition to the £50,000 which has already been provided as a free grant from the Development and Welfare Fund for the establishment of welfare centres. This matter is closely related to all problems of economic and social development but the Commission feels that the time has not yet arrived when it would be possible to apply modern principles of social security to the vast majority of the population of the Territory, which depends for its livelihood on a subsistence economy or on the growing of cash crops. It must also be borne in mind that Government already provides funds for a small welfare organization and that many of the schemes included in the plan have a definite social welfare bearing. In the circumstances the Commission is of the opinion that, for the present, welfare should not be regarded as a separate self-contained subject but that it should continue to be linked to the general day-to-day work of the Provincial Administration, with the assistance of such advisers and co-ordinating officers as may prove necessary. It also wishes to emphasize that social welfare is essentially a community effort and that it cannot be imposed from the outside but must be developed by the people themselves.

12. No provision has been made in the plan for the development of the co-operative movement as it is considered that this should be one of the normal activities of Government. Similarly the plan does not provide specifically for tsetse reclamation measures although such measures form an integral part of several of the land rehabilitation schemes.

13. Reference has already been made to the fact that £3,500,000 has been allocated from the Development and Welfare Vote to East Africa as a whole, to finance regional schemes. Plans for these schemes are being prepared under the aegis of the Governors' Conference organization and full details

of them are not yet available. It is hoped, however, that some part of this allocation will be made available to help finance such projects as the training of ex-servicemen and the improvement of the Tanganyika section of the Great North Road and of some of the Territory's main aerodromes used by the East African Airways Corporation.

14. In addition to the schemes listed in the schedule, there are certain projects for which free grants under the Colonial Development and Welfare Act were made before the development plan was completed. The Secretary of State has directed that the balance of these grants remaining unexpended on the 1st April 1946, should be debited to the Territorial allocation from the Fund. Provision must accordingly be made in the plan to enable this to be done. The following are the schemes concerned:—

Scheme No.	Nature of Scheme	Locality	Amount of free grant approved	Unexpended balance on 1.4.46
			£	£
D. 344	Improvement of Stock Routes ...	Territorial	56,000	40,800
D. 455	Social Centres	"	50,000	42,100
D. 507	Tsetse reclamation, Arusha/Usa area	Northern Province	22,000	15,300
D. 518 and 518A.	Rinderpest Control	Territorial	38,710	19,300
D. 547	Exploratory drilling for coal ...	Western Province	10,000	3,200
D. 650	Visit of Agricultural Officer to America in connection with soil conservation measures ...	Territorial	825	825
Total unexpended balance				£121,525

15. In this connection it should be noted that the under-mentioned schemes for which grants under the Act have recently been approved are included in the plan. No separate financial provision for them is therefore necessary.

Scheme No.	Nature of Scheme	Locality	Amount of free grant approved
			£
D. 418	Construction of two African girls' schools, Machame and Mbeya	Northern and Southern Highlands Provinces	£41,600
D. 565	Vernacular teachers' training centres	Territorial	13,000
D. 598	African girls' and women teachers' training centre ...	Lake Province	21,000
D. 627	Water Development	Territorial	109,000
Total			£184,600

16. Finally the Commission wishes to draw attention to the fact that a number of schemes included in the plan are already in the course of execution. They are being financed from revenue and by grants from the Colonial Development and Welfare Fund and the Agricultural Development Fund as shown in the schedule, the expenditure on them to the end of 1946 is estimated to amount to £626,500.

FINANCIAL IMPLICATIONS OF THE PLAN

17. For the purposes of finance, the plan has been divided into three sections as follows:—

Section I.—Includes schemes and projects to be charged against the Territorial grant from the Colonial Development and Welfare Fund and/or the financial resources of the Territory—excluding loans.

Section II.—Includes schemes and projects (excluding Railways and Ports) to be financed from Territorial loans and the regional grant from the Colonial Development and Welfare Fund.

Section III.—Includes schemes and projects for the development of the Railways, the Railway Road Services and the Ports, to be financed from loans.

18. The total cost of the plan over the ten-year period amounts to £18,004,800. To meet this liability it is estimated that the following sums can be made available from the Territory's resources in respect of each of the three sections:—

Section I.—

				£	£
Non-recurring items:					
Agricultural Development Fund	...	...	...	870,000	
Excess Profits Tax Fund	...	...	...	350,000	
Surplus Balances	...	...	...	500,000	
					1,720,000
Recurring items:					
Appropriations from annual revenue	...	...	...	1,500,000	
Contributions from Native Authorities	...	...	...	500,000	
					2,000,000
					3,720,000

Section II.—

Non-recurring items:						1,775,000
New Loans	...	...	...	...	...	

Section III.—

Non-recurring items:						3,950,000
New Loans	...	...	...	...	...	
						9,445,000

19. As regards the estimates for non-recurring contributions from Territorial sources, these have been limited to funds already available. The largest item is the Agricultural Development Fund which derives mainly from Government's control of the price of cotton; the difference between the amount paid to the producer and the proceeds from selling it in India and elsewhere is credited to this fund. The gap between buying and selling prices is now being narrowed in the interests of production, however, and although the fund is likely to increase beyond the present total of £870,000 odd, it would be unsafe to count on anything beyond one more season's profits.

20. The Excess Profits Tax Fund is approaching half a million pounds, but no estimate is available of the refunds which may have to be made in the winding up of the tax, so that no final estimate of the money likely to become available for development can yet be made. As in the case of the Agricultural Development Fund, the final out-turn may well be more favourable than the £350,000 predicted in this report. The Commission hoped that some additional funds would be secured from the working and realization of enemy properties, which have now become the property of the Tanganyika Government, but the Financial Secretary advises that it would be prudent to ignore this item.

21. In a country such as Tanganyika, where even what is usually regarded as pioneer development is very far from complete, it is well nigh impossible to draw a distinction between normal expansion of existing services and development. In arriving at an estimate of £1,500,000 for appropriations from annual revenue, regard has been had to the provision which has already been made in the 1946 budget for the recurrent costs of development projects within the plan, of which the following may be quoted as examples:—

	£
Water Development Department	25,000
Forestry	5,000
Aviation	5,000
Town Planning Unit	4,600

It is proposed to introduce a separate development budget in 1947 and when this has been compiled the existing commitments of revenue under the plan will be defined. Additional charges under such items will be incurred in 1947 and provision will also be made for capital works which fall within the plan. Essential capital works which are not included in the development programme will be financed through the normal budget, which will have the effect of limiting the contribution which can be made to development from annual revenue. In view of the extent and variety of the public works required, however, this parallel treatment of them is inevitable.

22. It will be the aim to provide a sum annually from revenue for development without qualification, but in view of the current heavy cost of food subsidization, it does not appear likely that much can be made available in 1947 or, indeed, until commitments arising from the war disappear.

23. Later in the year a clearer picture will appear of the contribution which can be made from revenue; for the present the estimate of £1,500,000 cannot be improved upon as a basic figure, susceptible to revision in the light of the future trend of revenue.

24. With regard to new loans, estimated to amount to £5,725,000 as shown in Table F, it is calculated that this figure represents the amount of new money which can be raised at 3 per cent interest and 1 per cent sinking fund contribution without increasing the amount of the present debt charges, provided that the following operations can be carried out:—

- (a) the conversion of the amount outstanding in the Exchequer Loan as at 31st December 1946, to a loan at 3 per cent interest with a 1 per cent sinking fund contribution;

- (b) the utilization of the accumulated sinking funds of the Guaranteed Loans for their partial redemption at their respective first redemption dates, and the conversion of the unredeemed balances to loans at 3 per cent interest with a 1 per cent sinking fund contribution.

25. The estimate of loan funds which can be made available is a conservative one based on the short term revenue prospects of the Territory. So long as heavy annual expenditure must be incurred on the subsidization of foodstuffs, anti-locust campaigns and protective measures against the spread of sleeping sickness, there is no balance of revenue available to meet new loan charges. It is for this reason that loan funds have been limited to a total which can be serviced without increasing the annual debt charges at present falling on the budget.

26. The loan funds allocated to section III of the plan (Railways and Ports development) amount to £3,950,000 and represent the Railways' share of the conversion product of existing loans; the amount to be raised is again governed by the sum of the debt charges at present met from Railways and Ports revenue.

27. It will be observed from Table E that the total cost of Railways and Ports projects at present in contemplation is £2,075,000, leaving a surplus of £1,875,000 available under section III. It is not proposed to earmark this surplus at present. So long as the Railways and Ports budget is relieved of the corresponding charges, the proceeds of the conversion of what are now the Railway's share of outstanding loans need not necessarily be devoted to railway and port expansion. It will be appreciated that the financial position of the Territory may improve during the ten-year period to an extent which would justify the assumption of additional debt charges in the interests of development and, in the event, it might well prove convenient for the Central Government to take over some part of the conversion product of existing Railway loans.

28. The total amount which can be made available to finance the development programme (excluding a possible grant from the Colonial Development and Welfare inter-territorial allocation) is as follows:—

	£
Colonial Development and Welfare grant to Tanganyika ...	5,250,000
From Territorial resources... ..	9,445,000
	£14,695,000

It will be noted that the plan provides for a gross expenditure which exceeds this total by £3,309,800. The Secretary of State has, however, indicated that the plan should embrace all developments proposed in the Territory over the next ten years without reference to the particular source from which they will be financed. This will enable advantage to be taken of any additional funds which may become available during the execution of the programme, whether from revenue, from the proceeds of loans or from any other source. On the other hand, if sufficient funds to finance the whole programme cannot be found during the ten year period, it will not be necessary to abandon any part of it, but merely to spread it over a longer period by slowing down the rate of execution.

SCHEMES WITHIN THE PLAN

Section I

29. This section contains schemes which the Commission considers to be fundamental to the economic development of the Territory. They are:—

The Development of Agriculture and Animal Husbandry.

Mineral Development.

Forestry Development.

The Development of Water Supplies.

Soil Conservation.

Geological and other Surveys.

Roads and Aerodromes.

30. The Commission has also included in this section projects which are the beginnings of Territorial wide social services and which are necessary to prepare the inhabitants of the Territory to take full advantage of the economic development referred to above. They consist of plans for the expansion of the public health and educational services and the development of the larger townships. Provision is also made here for the completion of the schemes for which grants have already been received from the Colonial Development and Welfare Fund.

31. The total cost of this part of the programme amounts to £9,585,000, of which £5,548,900 or 58 per cent is to be expended on economic development and £4,036,100 or 42 per cent on the expansion of social services. The total estimated revenue available to finance this section amounts to £8,970,000, of which £3,720,000 or 42 per cent is derived from Territorial resources and £5,250,000 or 58 per cent from the Colonial Development and Welfare Fund.

32. The whole of the Territorial grant under the Colonial Development and Welfare Act has been included in this section as the Commission feels that the sacrifices made by the taxpayers in the United Kingdom to assist Tanganyika should be devoted to economic and social essentials designed to launch the inhabitants of the Territory on the road of progress and to put them in a position to help themselves. Luxuries and frills, whether in the nature of Government building programmes, housing schemes or other social services in advance of the present stage of development of the people of the Territory, must come later and must be provided, in part at least, from the efforts of the people themselves and from the general increase in the country's productivity.

33. The details of this part of the programme are set out in Table C and may be summarized as follows:—

				Tanganyika Resources	C.D.F. Grants	
				£	£	
Expenditure	...	...	...	3,976,200	...	5,608,800
Revenue	...	...	...	3,720,000	...	5,250,000
					...	
Deficit	...	...	...	£256,200	...	£358,800
					...	

Section II

34. Section II of the plan includes economic projects of permanent value and social and public services which, although desirable in themselves, are yet somewhat ahead of the present stage of the Territory's development. It is probable that some of these schemes will not be capable of achievement within the ten-year period of the plan. They have, however, been divided into two categories of five years each and the Commission hopes that it will be possible to carry out all those included in the first five-year category within the period of the plan.

35. Against an estimated expenditure of £6,344,800 for this section, revenue is assessed at £1,775,000 from Tanganyika resources, plus whatever grant is made available from the regional allocation under the Colonial Development and Welfare Act to finance training schemes for ex-servicemen and the improvement of the Great North Road and the main trunk aerodrome. A detailed statement of revenue and expenditure is given in Table D.

Section III

36. Section III of the plan is devoted entirely to projects for the development of the Railways and Ports and the Road Services operated by the Railways. The Commission is of the opinion that none of these schemes require assistance from the Colonial Development and Welfare Fund. It considers that the Territory should be able to raise whatever funds are required by loans and that the cost of such borrowings should be covered by the charges. The details of this part of the programme are set out in Table E.

37. The financial implications of the three sections of the plan may be summarized as follows:—

Section	Cost (in £1,000s.)	PROVISION OF FUNDS		
		Territorial Resources (in £1,000s.)	C.D.F. Grant, Territorial allocation (in £1,000s.)	Deficit or Surplus (in £1,000s.)
I	9,585	3,720	5,250	- 615
II	6,345	1,775	—	- 4,570
III	2,075	3,950	—	+ 1,875
	18,005	9,445	5,250	- 3,310

38. The overall deficit of £3,310,000 is susceptible of reduction by the provision of additional funds as may become available from the regional allocation under the Colonial Development and Welfare Act, the Agricultural Development Fund and the Excess Profits Tax Fund, or from a marked expansion in the revenue of the Territory over the next ten years. While the deficit would prevent the execution of the plan within the ten-year period, it need not do so over a longer period. In any event it is unlikely that even £14,695,000 could be spent economically within ten years, so that the prolongation of the programme beyond 1956 may be expected to give better value for money as well as affording time for an expansion of the wealth of the Territory which might well enable the balance of the cost of the plan to be met from local resources.

RESIDUAL RECURRENT CHARGES AFTER THE PLAN IS COMPLETED

39. The Commission is conscious of the fact that a number of the schemes included in the plan will not be completed at the end of the ten-year period, but as has been recorded above, it is not unreasonable to hope that even if assistance under the Colonial Development and Welfare Fund ceases in 1956, the financial position of the Territory ten years from now will make it possible to find funds by loan or otherwise to complete the projects.

40. An endeavour has been made to obtain estimates of the residual recurrent charges which will become a permanent liability against the Territory's revenue for the maintenance of development carried out or initiated under the plan. The Commission has been advised, however, that it is impossible to make any firm estimates because so many factors which may influence the situation ten years hence are at present unknown. Even a calculation based on the assumption that the present programme will be completed in its original form would not be a safe basis on which to gauge the final recurrent charges involved, because the costs of labour, materials and other items of expenditure in ten years' time will certainly be different from those prevailing now.

41. The most that can be said is that heavy recurrent charges in respect of public health and education must be contemplated and that no direct increase of revenue can be expected in return. The maintenance of roads to a high standard will be costly but offset to some extent by increased revenue from vehicle licence fees, import duties and petrol tax. Little return can be expected within ten years from forestry development, though recurrent charges (susceptible to reduction, if necessary, by a contraction of effort) will remain. Expenditure on soil conservation and water supplies will almost certainly continue. The training scheme for ex-servicemen is a charge against Colonial Development and Welfare funds for three years; thereafter, if retained, the cost will fall to be met from revenue. It is accepted policy that a scheme for manual training shall be continued in Tanganyika as a branch of the established Government services and the recurrent cost appears likely to be of the order of £30,000 a year after 1948.

42. The Financial Secretary estimates that additional annual charges of the order of £300,000 for public health and £500,000 for African education, over and above the present expenditure of £373,000 and £280,000 respectively, will have to be provided in the budget for 1957. It is hoped, however, that the native authorities will be in a position to find perhaps as much as one-third of the money required at that date. The current cost of road maintenance, including the cost of staff, is of the order of £170,000 per annum. It is estimated that an additional £100,000 per annum at least will be required from 1957 onwards to maintain the roads in a proper state of repair, in view of their higher standard of construction and the increased volume of traffic which they will be required to carry by then.

43. No useful estimates of the additional recurrent costs of water supplies, soil conservation and forestry schemes can now be made. In any case commitments on them could, if necessary, be adjusted to meet the financial circumstances of the day.

MANPOWER

44. The Secretary of State has drawn attention to the importance of relating the programme as a whole to the available manpower in the Territory.

45. In 1937 an exhaustive enquiry was made into the supply and welfare of native labour in Tanganyika and the conclusions and recommendations reached are as valid to-day as they were then. The main conclusion was that there was ample manpower for the needs of the Territory but that from one cause or another there was a serious wastage of labour.

46. The conclusions of the 1937 Committee have received striking confirmation from Major G. St. J. Orde-Browne, C.M.G., O.B.E., the Labour Adviser to the Secretary of State, in his report dated 22nd November 1945, on labour conditions in East Africa. The problem is adequately summarized in paragraph 34 of the report, which reads as follows:—

“The dominant problem throughout East Africa is the deplorably low standard of efficiency of the worker; that is to say, the exceptionally small output characteristic of the entire country. It has always been a conspicuous weakness in East African economy, but it has been greatly accentuated by war conditions and universal opinion, which was confirmed by my own observation, declared that performance had deteriorated steadily during the whole of the war.”

47. There is nothing that the Commission can add to these views. Leisure appears to make an even stronger appeal to the average African than money and although the implementation of this plan will give him health, training and the opportunity for economic and social advancement, these alone are not enough without the spark of incentive on his part to make them fuse. Unless a way can be found to strike that spark, the further development of the Territory is likely to be seriously impeded.

VITAL STATISTICS

48. The Commission notes the proposal to hold a general census in 1948. As the census is to be taken for East Africa as a whole, it will presumably be financed from the current revenues of the territories concerned and from the regional allocation under the Colonial Development and Welfare Act. For this reason no provision has been made for it in the plan.

49. The Commission also considers that early steps should be taken to introduce a system of registration of births and deaths and to co-ordinate these statistics with those of the House and Poll Tax assessment rolls. It is of the opinion that a beginning can be made, with the assistance of the native authorities, by recording simple monthly returns of births and deaths—at first limited, in the case of births, to numbers according to sex and, in the case of deaths, to numbers, sex and known or estimated age. From such returns, statistics of age groups will gradually be accumulated and in the course of time further details can be added until full registration is achieved.

50. In this way a system of legal identity will be built up which may eventually become the basis of an electoral qualification in the development of self-government. Moreover, Major Orde-Browne has pointed out in paragraphs 227 to 235 of his report that workmen's compensation and similar social reforms cannot be introduced until legal identification is secured.

NATIVE AUTHORITIES

51. It is clearly desirable that the people who are to obtain direct benefit from any particular scheme should be required to pay at least a part of the cost and the Commission therefore recommends that everything possible should be done from the outset to associate the native authorities with the development programme. Some of them possess surplus balances materially in excess of the amounts which they require to keep in reserve against emergencies. Where this is so the Commission considers that they should be encouraged to contribute towards the cost of particular schemes or to finance other local development projects. In other cases it is suggested that the local inhabitants should be called upon to pay a part of the cost either by a local rate or by some other means.

52. The following analysis of the estimated expenditure by the native authorities in 1946 on economic and social services shows that much has already been achieved, but it also suggests that more can reasonably be expected from an African population of 5,480,000. It is not only through increased financial contributions, however, that they can assist in the fulfilment of the plan. Side by side with these must go an awakening of the people themselves; they must make a determined and sustained effort to increase the efficiency and output of their labour so that the schemes and projects which have been designed for their benefit may be carried through to a successful conclusion. It is by arousing this spirit in their people that the native authorities can make their greatest contribution to the plan.

NATIVE TREASURIES ANALYSIS OF ESTIMATED EXPENDITURE, 1946

Province	Tribal Administration	Medical and Sanitation	Education	Agriculture	Veterinary	Roads and Bridges	Trees Reclamation	Water Supplies	Forestry	General	Total
	£	£	£	£	£	£	£	£	£	£	£
Central ...	34,238	5,724	5,519	2,810	2,642	1,622	—	175	218	20,251	73,199
Eastern ...	20,818	7,461	13,829	3,113	—	1,193	—	602	389	1,070	49,075
Lake ...	66,281	13,941	20,362	5,267	2,343	4,466	918	1,597	1,337	1,032	118,114
Northern ...	17,669	5,720	24,366	697	3,378	2,075	702	1,597	1,624	5,952	63,780
Southern ...	15,234	1,569	2,847	420	108	900	—	711	139	3,904	25,832
Southern Highlands	16,488	6,128	14,304	2,958	1,184	1,683	—	—	1,266	1,375	45,606
Tanga ...	18,403	4,095	8,687	897	572	540	—	335	214	5,041	36,754
Western ...	25,353	3,765	7,844	978	725	1,030	48	200	1,002	3,768	44,733
Total ...	214,484	48,423	97,758	17,140	10,952	13,509	1,668	5,187	6,209	43,793	459,123

CONCLUSION

53. Tanganyika Territory is predominantly an agricultural country. It is true that it has considerable mining potentialities, many of them neither developed nor fully discovered; but the vast mass of the population is dependent on agriculture for a livelihood and for the growing of cash crops, either on their own account or as wage-earners on estates. Over the greater part of the country the soil is poor and the rainfall is often badly distributed. Nearly two-thirds of the Territory is closed to cultivation owing to the presence of tsetse-infested bush. The result is over-cultivation in the remaining areas with consequent soil deterioration and annually diminishing returns. On numerous occasions in the past economic depressions, arising out of circumstances beyond the Territory's control, or the need for maximum production for war purposes, have led to the soil being worked to an extent which has materially weakened its productive capacity; and there are signs over practically the whole of these areas of desiccation, erosion, destruction of forest and the general impoverishment of the soil. Evidence is accumulating on all sides to indicate that a continuance of the present practice of land exploitation will lead to conditions which spell disaster.

54. In these circumstances it is more than probable that agricultural output for export from the native areas will show a progressive fall until remedial measures have been taken, while even if non-native agricultural output shows some improvement and prices remain high, it is unlikely that there can be any increase in the national income under present conditions and sources of local revenue are unlikely to show any expansion. It is apparent, therefore, that the main objective of any development plan must be a rebuilding of the soil and of conditions which make stable agriculture possible. The deterioration which is taking place at present must be halted and rebuilding set in motion as soon as possible.

55. There is no one remedy for these conditions applicable over the Territory as a whole. The co-ordination of the work of the various departments concerned—agriculture, animal husbandry, soil conservation, water development, forestry, tsetse reclamation and game control—will be required in varying degrees of intensity in all the main parts affected and schemes of local application, worked out on the spot by teams of experts and carried out with the collaboration of the inhabitants (which is essential) will have to be considered one by one.

56. But though methods of rehabilitation and means of carrying out approved plans may vary from area to area, depending not only on the natural conditions found but also on the capacity of the inhabitants to collaborate in remedial measures, the scope of certain services can be devised which, when brought to bear over the country as a whole, will facilitate the more detailed and local measures applicable to the various areas. These services include stock and agricultural farms, forestry schemes, water development and a striking force—suitably equipped—for dealing with major soil conservation measures.

57. Apart from the rehabilitation of the soil, an important requirement to all development in the Territory is the improvement of road transport and of communications generally. It is essential also that in a country as backward as Tanganyika, there should be a considerable expansion of the social

services—public health and education. Finally, expenditure must be incurred on certain ancillary services which are essential to development but which cannot themselves be classed as development, such as the provision of housing and office accommodation for the services as a whole, and the construction of police lines, courts, prisons and other buildings which form a general administrative liability on the part of Government.

58. The above brief summary indicates the background against which the development plan has been framed. It is designed to raise the standards of living and well-being of the peoples of the Territory. It will require considerable effort on their part to carry it out, but the Commission hopes that they will seize the opportunity which is now offered to them to play their full part in the social and economic advancement of their country so that it may take its proper place in the Africa of to-day.

BRUCE HUTT,

*Deputy Chairman and Executive Officer,
Development Commission*

Dar es Salaam,

21st September 1946

TABLE A.—SUMMARY OF ESTIMATED TOTAL EXPENDITURE

Scheme	Capital Cost	Recurrent Cost	Total Cost	TO BE FINANCED FROM		Sanctioned to 31.12.46 from Tanganyika resources and C.D. & W. Grants, and in progress
				Tanganyika Resources	C.D. & W. Grants	
	£	£	£	£	£	£
I. Conservation and Development of Natural Resources ...	664,800	2,293,700	2,958,500	1,116,800	1,841,700	279,800
II. Communications ...	3,989,800	880,000	4,869,800	2,334,200	2,535,600	40,000
III. Social Services ...	1,578,800	3,971,700	5,550,500	2,959,000	2,591,500	183,900
IV. Miscellaneous (including Township Development, Public Works and Land Settlement) ...	2,344,500	85,000	2,429,500	2,369,500	60,000	13,200
V. Railways and Ports ...	2,075,000	—	2,075,000	2,075,000	—	—
	10,632,900	7,230,400	17,863,300	10,854,500	7,028,800	516,900
Add unexpended balance to complete schemes not mentioned above for which free grants have already been received ...				—	121,500	109,600
Grand Total ...				10,854,500	7,150,300	626,500

TABLE B.—SCHEDULE OF SCHEMES AND THEIR ESTIMATED COST

Scheme	Capital Costs	Recurrent Cost A	Total Cost	Estimated Expendi- ture to 31.12.46	TO BE FINANCED FROM	
					Tanganyika Resources	C.D.F. Grants
	£	£	£	£	£	£
I.—CONSERVATION AND DEVELOPMENT OF NATURAL RESOURCES						
1. *Agriculture and Animal Husbandry	458,800	748,900	1,207,700	148,300	1,116,800	90,900
2. Ufipa Coalfields—Investigation of Deposits	—	22,500	22,500	22,500	—	22,500
3. Forestry	17,000	251,300	268,300	—	—	268,300
4. Development of Water Supplies	88,000	767,000	855,000	109,000	—	855,000
5. Soil Conservation	75,000	125,000	200,000	—	—	200,000
6. Surveys:						
(a) Major Triangulation	—	19,000	19,000	—	—	19,000
(b) Topographical Survey... ..	7,500	210,000	217,500	—	—	217,500
(c) Geological Reconnaissance	18,500	150,000	168,500	—	—	168,500
	664,800	2,293,700	2,958,500	279,800	1,116,800	1,841,700
II.—COMMUNICATIONS						
1. Roads	3,335,600	880,000	4,215,600	—	1,880,000	2,335,600
2. Improvements to Aerodromes	435,400	—	435,400	40,000	235,400	200,000
3. Telecommunications	218,800	—	218,800	—	218,800	—
	3,989,800	880,000	4,869,800	40,000	2,334,200	2,535,600

*For detailed schemes see Table G.

TABLE B.—SCHEDULE OF SCHEMES AND THEIR ESTIMATED COST—(contd.)

Scheme	Capital Cost	Recurrent Cost	Total Cost	Estimated expenditure to 31.12.46	TO BE FINANCED FROM	
					Tanganyika Resources	C.D.F. Grants
	£	£	£	£	£	£
III.—SOCIAL SERVICES						
1. Public Health	915,000	2,089,000	3,004,000	—	2,004,000	1,000,000
2. Education	250,000	1,655,000	1,905,000	60,000	655,000	1,250,000
3. Training of Ex-Servicemen	113,800	227,700	341,500	111,000	—	341,500
4. Loans to Municipalities for African Housing	300,000	—	300,000	12,900	300,000	—
	1,578,800	3,971,700	5,550,500	183,900	2,959,000	2,591,500
IV.—MISCELLANEOUS						
1. Township Development	1,069,500	60,000	1,129,500	4,700	1,069,500	60,000
2. Public Buildings and Works	1,000,000	—	1,000,000	—	1,000,000	—
3. Land Settlement	25,000	25,000	50,000	8,500	50,000	—
4. Land Bank	250,000	—	250,000	—	250,000	—
	2,344,500	85,000	2,429,500	13,200	2,369,500	60,000
V.—RAILWAYS AND PORTS						
	2,075,000	—	2,075,000	—	2,075,000	—

TABLE C.—SECTION 1.—SCHEMES TO BE FINANCED FROM LOCAL RESOURCES (EXCLUDING LOANS) AND THE TERRITORIAL ALLOCATION FROM THE COLONIAL DEVELOPMENT AND WELFARE FUND

Expenditure	TO BE FINANCED FROM		Resources	£
	Tanganyika Resources	C.D.F. Grants		
I.—CONSERVATION AND DEVELOPMENT OF NATURAL RESOURCES	£	£	FROM TANGANYIKA RESOURCES	£
1. Agriculture and Animal Husbandry ...	1,116,800	90,900	Agricultural Development Fund ...	870,000
2. Ufipa Coalfields: Investigation of Deposits	—	22,500	Excess Profits Tax Fund ...	350,000
3. Forestry ...	—	268,300	Surplus Balances ...	500,000
4. Development of Water Supplies ...	—	855,000	Appropriations from Annual Revenue ...	1,500,000
5. Soil Conservation ...	—	200,000	Contributions from Native Authorities ...	500,000
6. Surveys ...	—	405,000	FROM THE UNITED KINGDOM	3,720,000
II.—COMMUNICATIONS			Colonial Development and Welfare Fund—	5,250,000
1. Roads ...	880,000	1,335,600	Territorial allocation ...	...
2. Improvements to Aerodromes ...	235,400	—		...
III.—SOCIAL SERVICES				
1. Public Health ...	1,089,000	1,000,000		
2. Education ...	655,000	1,250,000		
IV.—MISCELLANEOUS				
1. Township Development ...	—	60,000		
Add Unexpended balance to complete schemes for which grants have already been received	3,976,200	5,487,300		
		121,500		
	3,976,200	5,608,800		
	256,200	358,800		
Deficit ...	3,720,000	5,250,000		8,970,000

TABLE D.—SECTION 2.—SCHEMES (EXCLUDING RAILWAYS AND PORTS) TO BE FINANCED FROM LOANS AND THE REGIONAL ALLOCATION FROM THE COLONIAL DEVELOPMENT AND WELFARE FUND

Expenditure	Priority A First Five Years	Priority B Second Five Years	Resources	AVAILABLE IN PERIOD	
				Priority A	Priority B
	£	£		£	£
II.—COMMUNICATIONS			FROM TANGANYIKA RESOURCES		
1. Roads (including Great North Road) ...	1,500,000	500,000	Additional borrowing power within the present annual debt charges secured by redeeming existing loans by fresh borrowings at lower rates of interest and redemption ...		
2. Aerodromes ...	200,000	—			
3. Telecommunications ...	218,800	—	FROM THE UNITED KINGDOM	1,775,000	—
III.—SOCIAL SERVICES			Colonial Development and Welfare Fund—		
1. Public Health—capital expenditure ...	430,000	485,000	regional allocation (for the training of ex-servicemen, the Great North Road and improvements to trunk aerodromes)		
3. Training of Ex-Servicemen ...	341,500	—			No amount yet allocated
4. Loans to Municipalities for African Housing	150,000	150,000			
IV.—MISCELLANEOUS					
1. Township Development ...	569,500	500,000			
2. Public Buildings and Works ...	500,000	500,000			
3. Land Settlement ...	50,000	—			
4. Land Bank ...	250,000	—			
	4,209,800	2,135,000		1,775,000	—

TABLE E.—SECTION 3.—RAILWAYS AND PORTS SCHEMES TO BE FINANCED FROM LOANS

Expenditure	Priority A First Five Years	Priority B Second Five Years	Resources	AVAILABLE IN PERIOD	
				Priority A	Priority B
	£	£		£	£
<i>Road Services:</i>					
Capital works, such as workshops, work- shop equipment, service depots, staff running rooms, etc.	75,000	—			
<i>Ports:</i>					
(a) Lindi—improved facilities ...	50,000		Additional borrowing power within the pre- sent annual debt charges made available by redeeming existing loans out of fresh borrowings at lower rates of interest and redemption	3,950,000	
(b) Tanga—berth for coasters ...	100,000				
(c) Mikindani—improved facilities ...	40,000				
(d) Dar es Salaam—dredging of channel ...	160,000				
(e) " "—two deep-water berths ...	400,000	200,000			
(f) Tanga—one deep-water berth ...	—				
(g) Miscellaneous works at all ports ...	50,000				
	800,000	200,000			
<i>Railways:</i>					
Housing	100,000				
Rolling stock and open line equipment	100,000	100,000			
Extensions—Mpanda Line	700,000				
	900,000	100,000			
Grand Total ...	1,775,000	300,000		3,950,000	—

TABLE F.—STATEMENT OF OUTSTANDING LOANS AND NEW LOAN REQUIREMENTS

	Amount Out- standing	Accumulated Sinking Fund	Current annual charges (excluding management expenses) on total amount of loan	Annual charge at 1% sinking fund and 3% interest on net amount out- standing	Saving be- tween cur- rent annual charge and the revised annual charge	New capital that could be raised at 1% sinking fund and 3% interest with the annual saving
	£	£	£	£	£	£
1946 Exchequer Loan: General Account	713,000	274,000	43,000	17,600	25,400	635,000
Railway Account!	1,273,000	359,000	76,000	36,500	39,500	987,500
	1,986,000	633,000	119,000	54,100	64,900	1,622,500
1948 Guaranteed Loan 1948/68: General Account	154,000	47,000	9,000	4,300	4,700	117,500
Railway Account	1,916,000	586,000	116,000	53,200	62,800	1,570,000
	2,070,000	633,000	125,000	57,500	67,500	1,687,500
1951 " " 1951/71: General Account	1,070,000	332,000	59,000	29,500	29,500	737,500
Railway Account	1,930,000	599,000	107,000	53,200	53,800	1,345,000
	3,000,000	931,000	166,000	82,700	83,300	2,082,500
1952 " " 1952/72: General Account	418,000	130,000	23,000	11,500	11,500	287,500
Railway Account	82,000	26,000	4,000	2,200	1,800	45,000
	500,000	156,000	27,000	13,700	13,300	332,500
Grand Total	7,556,000	2,353,000	437,000	208,000	229,000	5,725,000

TABLE G.—AGRICULTURAL AND ANIMAL HUSBANDRY SCHEMES AND THEIR ESTIMATED COST

Scheme	Locality	Capital Cost	Recurrent Cost	Total Cost	Estimated Expenditure to 31.12.46	TO BE FINANCED FROM	
						Tanganyika Resources	C.D.F. Grants
(a) Training of agricultural instructors	Territorial	£ 25,000	£ 70,000	£ 95,000	£ 32,800	£ 95,000	£ -
(b) Agricultural training for Indians	"	8,000	20,000	28,000	10,000	28,000	-
(c) Houses for field officers	"	5,000	-	5,000	5,000	5,000	-
(d) Central breeding station, Mpwapwa	"	16,500	15,000	31,500	5,800	31,500	-
(e) Improvement of supplies of planting material	"	6,200	12,800	19,000	-	19,000	-
(f) Development of tobacco industry	"	1,000	10,000	11,000	-	11,000	-
(g) Improvement of copra industry	"	7,500	35,000	42,500	-	42,500	-
(h) Marketing of native produce	"	4,000	21,500	25,500	-	25,500	-
(i) Development of Sukumaland	Lake Province	63,400	150,000	213,400	20,200	213,400	-
(j) Malialuguru stock farm	"	15,500	-	15,500	8,000	15,500	-
(k) Extension of Ukiriguru experimental station	"	38,000	21,000	59,000	11,800	59,000	-
(l) Bukoba coffee sub-station	"	13,900	16,000	29,900	15,500	29,900	-
(m) Demonstration station, Musoma District	"	4,500	15,000	19,500	-	19,500	-
(n) Development of ghee industry, Musoma and Sukumaland	"	9,300	16,600	25,900	-	25,900	-
(o) Construction of dams for the development of rice production	Lake and Western Provinces	20,000	-	20,000	-	20,000	-
(p) Development of Mbulu District	Northern Province	75,000	50,000	125,000	7,900	34,100	90,900

TABLE G.—AGRICULTURAL AND ANIMAL HUSBANDRY SCHEMES AND THEIR ESTIMATED COST—(contd.)

Scheme	Locality	Capital Cost	Recurrent Cost	Total Cost	Estimated Expenditure to 31.12.46	TO BE FINANCED FROM	
						Tanga-nyika Resources	C.D.F. Grants
(q) Chagga investigation centre	Northern Province	£ 4,500	£ 8,000	£ 12,500	£ -	£ 12,500	£ -
(r) Demonstration farm, Northern Province	"	35,200	72,000	107,200	-	107,200	-
(s) Soil conservation, Eastern Kilimanjaro	"	-	3,300	3,300	-	3,300	-
(t) Housing for African agricultural instructors ...	Northern and Western Provinces	4,500	-	4,500	-	4,500	-
(u) Cotton experimental station, Ilonga	Eastern Province	34,000	21,000	55,000	17,000	55,000	-
(v) Rehabilitation of Uhuguru mountains	"	10,000	40,000	50,000	-	50,000	-
(w) Development of Kilombero valley	"	1,500	10,000	11,500	-	11,500	-
(x) Ulanga rural development scheme	"	26,000	72,500	98,500	6,230	98,500	-
(y) Development of Rufiji valley	"	6,000	18,000	24,000	-	24,000	-
(z) Rehabilitation of Mlalo basin	Tanga Province	1,500	14,500	16,000	-	16,000	-
(aa) Luengira and Kitivo irrigation schemes ...	"	1,500	5,000	6,500	-	6,500	-
(bb) Development of Tumbi and Mwachala sub-stations ...	Western Province	6,000	5,000	11,000	-	11,000	-
(cc) Development of rice production, Southern Province...	Southern Province	1,800	11,700	13,500	3,070	13,500	-
(dd) Experimental farm, Southern Highlands Province ...	Southern Highlands Province	5,000	15,000	20,000	-	20,000	-
(ee) Provision of water supplies, Chungai/Filimo settlement	Central Province	8,500	-	8,500	5,000	8,500	-
		458,800	748,900	1,207,700	148,300	1,116,800	90,900

EXPLANATORY NOTES ON THE SCHEMES

Many of the schemes included in the plan have already been described in the report of the Central Development Committee and in the "Outline of Post-War Development Proposals"; the following brief notes are given in amplification of the information contained in these two reports. Where necessary the schemes have been enlarged in scope to cover the full ten-year period on which the plan is now based and the estimates have been revised and brought up to date accordingly.

I.—CONSERVATION AND DEVELOPMENT OF NATURAL RESOURCES

1. AGRICULTURE AND ANIMAL HUSBANDRY.—

(a) *Training of Agricultural Instructors.*—See paragraph 12 of the Outline. Preparations have been made for 600 instructors to be trained at Ukiriguru in the Lake Province and 400 at Lyamungu in the Northern Province. The school at Ukiriguru has already been opened and will begin to turn out 120 instructors per annum in 1948. Further capital works at Ukiriguru are being undertaken this year but no work will be carried out at Lyamungu until further experience has been gained at Ukiriguru.

(b) *Agricultural Training for Indians.*—See paragraph 20 of the Outline. The school which is being set up at Morogoro will hold 30 pupils and 10 places have been reserved for pupils from Kenya, the Government of which colony is contributing one-third of the cost.

(c) *Houses for Field Officers.*—These houses are required for the field officers to be engaged on contract to encourage the extension of cotton and rice growing and for soil conservation and African settlement schemes.

(d) *Central Breeding Station, Mpicapura.*—See paragraph 22 of the Outline.

(e) *Improvement of Supplies of Planting Material.*—The East African Agricultural Research Station at Amani has done a certain amount of work in the past few years by introducing improved varieties of the different crops at present being grown on a commercial scale in East Africa, but there is an enormous field of work to select and multiply in sufficient quantities for commercial use the best varieties already growing in various parts of the Territory. It is not considered that any permanent increase in production can be achieved by extending the acreage at present under native cultivation. It is better methods of soil cultivation, correct plant spacing and the general availability of better planting material which must ensure the country's future prosperity. In the past the Agricultural Department has been unable to do much towards improving the seed supplies and, apart from the small rice farm in the Lake Province, there has been no organized attempt to improve planting material and, more important still, no machinery to ensure that when a good strain of seed has been spotted it may be made available as

quickly as possible for bulk sowing. It is, therefore, proposed that the present experimental station at Morogoro and, possibly, the station at Ukiriguru should be utilized for the improvement of seed supplies by selection rather than by breeding new varieties, and that a third station should be established for this purpose in the Moshi District of the Northern Province.

(f) *Development of Tobacco Industry*.—Since the beginning of the war a considerable flue-cured tobacco industry has developed in the Iringa District. The industry is largely in the hands of Greek planters and has expanded rapidly to a total production of approximately one and a half million pounds of leaf. This tobacco has been used chiefly in the manufacture of cigarettes for the Forces in East Africa and even now it is apparent that the local demand for it is falling away. It is essential, therefore, that the industry should be planned on a sound footing in order to develop an export market; for there is no doubt that the Territory can produce good quality tobacco—air-cured, fire-cured and flue-cured—and it is considered that the production of quality leaf not only in Iringa but in several other of the more distant areas will prove the salvation of many small farmers. It is accordingly proposed to assist the industry in the following manner:—

- (i) by investigating suitable tobacco-growing areas in various parts of the Territory;
- (ii) by carrying out a series of manurial trials in the Iringa tobacco-growing area;
- (iii) by investigating the best methods of curing the leaf with the local materials available in each area.

(g) *Improvement of Copra Industry*.—From time to time in recent years the Government has given financial assistance to copra producers to enable them to erect Seychelles copra kilns. It will not, however, be practicable to obtain the full benefit of this assistance unless adequate staff is available to teach and demonstrate to producers the correct methods of copra manufacture, and also to assist them to obtain better prices for the higher quality copra produced in their kilns. It is proposed to employ four Agricultural Assistants on this work. They will be stationed in the coastal districts and their duties will include the fostering of general agriculture as well as copra improvement, and the rehabilitation of the coastal areas is a problem requiring urgent attention.

(h) *Marketing of Native Produce*.—See paragraph 13 of the Outline.

(i) *Development of Sukumaland*.—See paragraph 17 of the Outline. The maldistribution of population and stock in the Sukuma Districts has been a subject of grave concern to Government for many years. Nearly a million Africans are involved and unless action is taken to ameliorate conditions the progressive loss of soil fertility may not only jeopardise a large proportion of the Territory's revenue but may also lead to famine, the seriousness of which can well be imagined amongst so large a population. It is proposed to organize a redistribution of stock and human population in order to effect a reduction of pressure in the parts of the area which are now overcrowded. As soon as this redistribution has begun, it will be possible to accelerate the adoption of improved methods of husbandry, soil conservation measures and the like over the whole area so as to preserve and even to raise the level of soil fertility which is at present in danger in the overcrowded parts. The main line of action consists in facilitating existing movements of population both internal to the plains within Sukumaland and externally to the northern areas.

Uzinza. The key to assisting this movement lies in the provision of new water supplies at frequent intervals in the waterless areas. It is proposed that an inter-departmental and inter-district team covering the four agricultural districts of Sukumaland should carry out the programme.

The rehabilitation of Sukumaland is closely connected with the political re-organization which is now under way. It has been decided that the headquarters of the new Sukuma federation should be at Malialuguru, where all departmental activities will gradually be centred.

(j) *Malialuguru Stock Farm.*—The establishment of a stock farm at Malialuguru takes high priority in the Sukumaland development programme. Water supplies are assured and an adequate grazing area has been included in the proposed lay-out. It is intended that the farm shall fulfil the three functions of experiment—selection and testing of improved breeding stock, demonstration, and multiplication and distribution of improved stock in Sukumaland. It will also include a hostel for students undergoing instruction in animal husbandry.

(k) *Extension of Ukiriguru Experimental Station.*—This station, with sub-station work at Lubaga in Shinyanga, will serve the cotton growing areas of the Lake Province. The results achieved will also be of importance for much of the country from the Central Province to Kavirondo. The work of testing out practical ways of preventing insidious soil losses and of maintaining and building up fertility has already begun, but a great deal more exact work and follow-up is needed. The experiments are concerned with the use of manure, land usage and methods of fallowing; grass leys, resting the land and tie-ridging; maintaining soil structure and retaining the finer soil particles, essentially under conditions of mixed farming where cattle can be kept (as distinct from Ilonga—see under paragraph (u) below—where cattle cannot be kept and, therefore, where fertility work has to be done in the absence of any mixed farming).

The main cotton work being undertaken at this station is the breeding of a type of cotton suited to the conditions of the area, with lint suited to the present market, resistant to the pest jassid and eventually to be resistant to the bacterial infection blackarm.

The cotton experimental work at both Ukiriguru and Ilonga will be closely associated with similar work in other territories and it will also be dependent on the more advanced work proposed for the new Empire Cotton Growing Corporation's central station near Kampala and the genetical side of the work which is being undertaken at Shambat near Khartoum.

(l) *Bukoba Coffee Sub-Station.*—See paragraph 15 of the Outline. Research on arabica coffee is carried out at the Lyamungu Coffee Research Station, but hitherto no centre for the investigation of robusta coffee has been set up. Declining yields in the important Bukoba native coffee crop have emphasized the need for an improvement both in the methods and standard of coffee cultivation in that district. The main aim of the proposed coffee sub-station will be research into the cultivation methods suitable to the special conditions in Bukoba and, particularly, methods of combining stock farming and coffee planting in order to overcome the poverty of the Bukoba soils.

(m) *Demonstration Station, Musoma District.*—See paragraph 16 of the Outline.

(n) *Development of Ghee Industry, Musoma and Sukumaland.*—The bulk of the ghee and clarified butter produced in the Lake Province comes from the Musoma District and Sukumaland.

In Musoma the ghee is made by individual producers, most of whom own their own separators. It is estimated that there are over a thousand of these in the district but the majority of them are now worn out and unserviceable. The result has been a steady decline in recent years in both the quantity and the quality of the ghee produced. The industry requires supervision and encouragement to enable it to develop along proper lines and is therefore proposed to employ a European supervisor with adequate subordinate staff and suitable facilities for training producers in the correct methods of production. It is also intended to make an interest-free loan to the native authorities, to enable them to establish creameries and to purchase separators for sale to producers on hire-purchase agreements.

In Sukumaland the bulk of the ghee is still produced in the primitive and unhygienic *kibuyu* and it is consequently of very poor quality. Efforts have been made in recent years to introduce the use of separators but a good deal remains to be done to establish the industry on a proper footing. Hence again it is necessary to provide a supervisory and teaching service and to assist the native authorities financially to establish creameries and to purchase separators for re-sale to producers.

(o) *Construction of Dams for the Development of Rice Production.*—A review of the rice production in Tanganyika shows that it is only when exceptional rains occur that there is any real production of paddy. The rainfall in the Lake and Western Provinces which are the chief producing areas is not sufficient to enable rice to be grown in swamp conditions, and the result is that the producer only gets a fair return for his labour about once in every four years. It is therefore proposed to step up the cultivation of swamp rice in these two provinces, and elsewhere where necessary, by the construction of numerous small dams. These dams will be built across small valleys at a cost of between £50 and £100 each. The rainfall so collected will be available for domestic purposes and for watering small herds of stock; and there will also be sufficient water in each dam to irrigate between 20 and 100 acres of land in proper banded terraces. By this means it is estimated that it will be possible to produce from 5,000 to 10,000 tons of paddy each year with a minimum rainfall.

(p) *Development of Mbulu District.*—For the past fifteen years the steady deterioration of the land in the Mbulu District, particularly of the naturally fine country of the Mbulu Highlands, has been recognized and reported. Nearly two-thirds of the district are occupied by tsetse fly and the constant pressure of the fly front on all centres of the district, coupled with the rapid increase of human population, has led to recurrent famines, cattle starvation and the over-stocking of the land. A district land usage plan covering a period of approximately five years has accordingly been prepared to provide for the rehabilitation of the district both above and below the Rift Wall. It is proposed that the cost of the scheme, which includes the agricultural station referred to in paragraph 18 of the Outline, should be financed partly from the Colonial Development and Welfare Fund and partly by the Mbulu native authorities.

(q) *Chagga Investigation Centre.*—See paragraph 19 of the Outline.

(r) *Demonstration Farm, Northern Province.*—See paragraphs 125 to 127 of the Central Development Committee's report.

(s) *Soil Conservation, Eastern Kilimanjaro.*—On eastern Kilimanjaro the belt of land running between the coffee growing area and the Kenya border (30 miles long by 7 miles wide) is heavily cultivated and grazed. The area under cultivation has been doubled in recent years as a result of war-time production drives, with a consequent reduction of the area available for grazing. Considerable erosion, encouraged by the recent dry years, is now taking place and it is important that comprehensive soil conservation measures should be undertaken to preserve and consolidate the work which has already been done in this respect.

(t) *Housing for African Agricultural Instructors.*—At present agricultural instructors have no permanent houses to which peasant cultivators can go for advice and assistance, and they have no stores in which to keep the seeds, levels, tools, etc., which they require for their work. It is considered that the value of their work would be considerably enhanced if they were to be provided with suitable accommodation. It is therefore proposed to erect ten permanent three-roomed houses, with the usual kitchens and outbuildings, for senior instructors in the Western Province and nineteen similar houses on Kilimanjaro. Each house will consist of two rooms for dwelling purposes and a third room which will be used as a store for seeds, planting materials, levels, etc., and where posters and pamphlets can be displayed. The houses will have one or two acres of land attached to them for the demonstration of better methods of growing food crops and the measures which should be taken to conserve the soil.

(u) *Cotton Experimental Station, Ilonga.*—This station, which is situated near Kilosa, will provide a cotton breeding and experimental station to serve the needs of the Eastern, Tanga and Northern Provinces. In recent years insect pests have taken a heavy toll of cotton grown in these areas and a major part of the work at Ilonga will be devoted to a study of the best means of avoiding and eradicating them. A second and equally important side of the work will be the testing out of a range of cotton types, prolific in cropping or with a somewhat delayed style of cropping, to avoid some of the pest damage. By localized breeding and selection it is hoped to build up a strain which, together with measures for pest control, will result in a considerable increase in production. The station will also serve as a centre for the testing out and study of improved types of food crops.

(v) *Rehabilitation of Uluguru Mountains.*—The Uluguru Mountains serve as a water-shed for the Ruvu and the Ngerengere rivers, and also to some extent for the Rufiji River. In recent years the extension of native cultivation coupled with increased deforestation have resulted in a great increase in the run-off during the rainy season, so that the first two rivers referred to no longer receive a steady flow of water from the mountains throughout the year while, during the rains, floods are frequent. This flooding may possibly account for the fact that the Rufiji River has risen to danger level almost annually since 1935, whilst in the preceding eight years it only once rose above the ten-foot flood mark.

Apart from a permanent loss of soil fertility in the mountains themselves, the sisal estates along the Ruvu and Ngerengere rivers are often in dire need of the necessary water to process their fibre, while the extensive floods in the rainy season limit the production of rice.

Much work has been done in recent years to combat soil erosion in the mountains, but the slopes are so steep and the problems so varied that the ordinary measures which would be adequate elsewhere for limiting losses due to erosion have not always proved to be suitable in this case. It is proposed, therefore, that a soil erosion experimental station should be opened at an early date to ascertain the most appropriate methods for dealing with the situation.

(w) *Development of Kilombero Valley.*—See paragraph 14 of the Outline.

(x) *Ulanga Rural Development Scheme.*—This scheme has as its object the promotion of education in its widest sense and it makes provision for the economic and general advancement of the local inhabitants. It envisages the establishment of a large training institute at Mahenge covering a wide range of subjects from carpentry to agriculture and from leather work to shop-keeping. The institute will have its own farm, power driven workshops for exploiting the forest, a creamery, garage, tannery, general trading store and a school. In addition it is proposed to develop the main development centre, comprising some 500 acres, by the construction of roads of access, the demarcation of grazing and woodland areas, demarcating building sites, and cleaning and regulation streams.

(y) *Development of Rufiji Valley.*—In paragraph 145 of the Central Development Committee's report it is recommended that two agricultural stations should be opened in the Rufiji Valley. It is now considered that only the floodlands station is necessary and that the uplands station can be dispensed with in view of the fact that much of the work which would have been carried out at that station is being undertaken elsewhere in the Territory.

(z) *Rehabilitation of Mlalo Basin.*—It is considered that early steps should be taken to rehabilitate this badly eroded and over-populated area. These will include the demarcation of existing communal grazing areas; village surveys in the basin itself and in adjacent areas to obtain information regarding population tendencies, pasture acreages, cattle ownership, land tenure and family income, etc.; the demarcation of permanent grazing; and the complete closure of all denuded and unoccupied land with sisal hedges. It is also proposed to open a demonstration area consisting of 700 acres of arable and pasture land and 300 acres of completely denuded and unoccupied land, which will be intensively treated for the restoration of fertility.

(aa) *Luengira and Kitivo Irrigation Schemes.*—Over-cultivation on the hill sides bordering the Luengira and Kitivo valleys has now reached a stage when it is causing considerable erosion and loss of soil fertility. Preliminary investigations indicate that extensive areas in these two valleys are capable of producing good crops of cotton, rice and sweet potatoes provided that proper irrigation works can be constructed. It is proposed to put 500 acres of this land under irrigation in the first place, with a possible extension to between 4,000 and 5,000 acres. This will not only save the hill sides from further deterioration but will also add considerably to the productivity of the areas concerned.

(bb) *Development of Tumbi and Mwahala Sub-Stations.*—These two stations were opened shortly before the war to investigate a proper rotation of crops for the people living in the Western Province, whereby the fertility of their soil could be improved and their cash earnings increased. The station sites are representative of large areas of the Province and it is considered that the work being carried out on them offers considerable promise for better

development in that Province. The main problems involved are the control of tsetse fly, the development of rice production and, especially, the creation of a proper agricultural rotation.

(cc) *Development of Rice Production, Southern Province.*—This scheme was started in 1945. During the war years the Southern Province exported many thousands of tons of foodstuffs which in normal times could not have found a market on account of transport costs. In order to exploit the potentialities of the Province and with an eye on the Zanzibar market, it is desired to foster the production of rice under controlled irrigation. An experimental station has been set up for the selection and multiplication of suitable strains of seed.

(dd) *Experimental Farm, Southern Highlands Province.*—It is proposed to conduct a series of long-term experiments on one or more farms in the Dabaga area of the Iringa District in order to establish the appropriate mixed farming system for that area.

(ee) *Provision of Water Supplies, Chungai-Filimo Settlement.*—Soil erosion and desiccation are a serious problem in the Irangi Chiefdom of the Kondoa District and a scheme of land rehabilitation has recently been decided on which involves a considerable re-settlement of population in the area below the Kondoa escarpment, some few miles to the east of the Great North Road between Kondoa and Bereku. This area is fertile and suitable for settlement but is not yet free from tsetse fly and is short of water, due to the disappearance of the streams as they flow east off the escarpment into the flat country below. A great deal of labour has been expended in past years on a tribal basis in clearing the area of bush; but the process of eliminating the fly is a slow one and settlement is being retarded as the Irangi are cattle owners and are loathe to move down without their stock.

It is now necessary for the settlement scheme below the scarp to be pushed forward as rapidly as possible, in view of the serious threat of sleeping sickness spreading from the Ufime and Kikore areas to the north, and of the increasing need to provide relief from over-crowding in the rest of the district.

The Kondoa native treasury is financing the cost of completing the essential clearing of fly bush in the main settlement area. With regard to a water supply, technical advice is to the effect that this can be provided by means of a pipe line, some six miles long, which will bring the water from the Kandaya River at the point where it leaves the escarpment out to the settlement area to the east. It is intended to pipe the water to a large storage tank and to construct troughs and a cattle dip.

2. *UFIPA COALFIELDS, INVESTIGATION OF DEPOSITS.*—Work has been going on for some time for the bulk sampling of coal in the most promising portion of the Namwele coalfield (which forms the southern part of the Ufipa coalfields). The work is of the nature of underground prospecting and consists of two vertical shafts sited to intersect the coal measures at approximately 150 feet below the surface, a drive along the best seams connecting the shafts and cross-cuts. Prospecting is also being carried out on the remainder of the Namwele field and a number of prospecting pits are being sunk along the whole length of the field and in neighbouring areas.

It is intended to seek assistance from the Colonial Development and Welfare Fund to cover the present exploration.

3. *FORESTRY.*—See paragraph 23 of the Outline.

4. DEVELOPMENT OF WATER SUPPLIES.—See paragraph 24 of the Outline. The Water Development Department has now been established and a ten-year scheme for the improvement of rural water supplies throughout the Territory has been drawn up. The general methods by which it is proposed to effect improvement may be summarized briefly as the construction of small reservoirs and catchments, the development of springs and seepages, the sinking of wells and bore-holes, the utilization of mountain streams whose water may at present become reduced or lost at low levels, and such other means as local circumstances may dictate.

The scheme is estimated to cost £855,000, of which £88,000 will be expended on the purchase of machinery and equipment, and £767,000 devoted to construction. It is intended that all supervisory and technical work should be carried out by the staff of the Water Development Department, the recurrent cost of which (estimated at £25,000 per annum) will be met from Territorial funds.

5. SOIL CONSERVATION.—See paragraph 25 of the Outline. An agricultural officer is at present visiting America, where he will spend some months studying the latest methods, both mechanical and otherwise, for dealing with soil erosion. When he has returned, the necessary mechanical equipment can be ordered and the requisite staff engaged to enable the problem to be dealt with on a proper basis. There is little doubt that considerable staff and heavy equipment will be required, but it is not possible to forecast what this will cost until the officer concerned has completed his training and has submitted his proposals. Meanwhile a token figure only has been included in the plan.

6. SURVEYS.—See paragraphs 26 to 30 of the Outline. These surveys are additional to the proposed geodetic and topographical survey of the Colonial Empire which is to be financed from the centrally controlled portion of the Colonial Development and Welfare Vote.

II.—COMMUNICATIONS

1. ROADS.—See paragraph 31 and Appendix A of the Outline. It has recently become necessary to reconsider the proposals for road development contained in the 1944 programme and to re-state them in a slightly modified form. The two main reasons for doing so are:—

- (a) the change which has taken place in the Territory's financial position since the 1944 proposals were drawn up; and
- (b) the proposed modification of the location of the main traffic route linking the central and the northern railway and road systems.

With regard to (a), the present financial position of the Territory will not allow of the realization of the intention expressed in paragraph 19 (ii) of page 23 of the Outline, i.e., a minor and general improvement programme, financed from Territorial funds and proceeding parallel with the loan financed programme which consisted chiefly of large specific works. Omitting this minor programme leaves a gap which must be filled by inserting its essential items in the development programme and omitting or postponing the less immediately urgent items of that programme.

With regard to (b), the first item of the programme previously submitted, that is, the Iringa-Korogwe road (350 miles), £631,000, formed a relatively large proportion of the whole programme of work. Survey work recently

carried out on the Iringa-Kilosa section of this road (this section being intended to provide more rapid and economical access to Iringa and the Southern Highlands area than the portion of the Great North Road now in use to Dodoma) indicates that it is impossible to circumvent the Katonga escarpment, a major and costly obstacle on this route. Moreover further improvements to the Great North Road, now rendered advisable by the increased importance of this road on strategic and inter-territorial grounds, increases the desirability of postponing the improvement of the shorter route. With regard to the remainder of this item—the continuation of the road beyond Kilosa to Korogwe (intended primarily as a link between the two railway and road systems)—further consideration has led to the conclusion that such a connection can more suitably be provided further to the east where it will also meet the recurrent and insistent public demand for rapid road communication between the capital and Tanga and the northern highlands (and thence to Mombasa, Arusha, etc.). The road proposed would have the further advantage that by the construction of a relatively short link joining this road to the existing Dar es Salaam-Morogoro road west of the Ruvu river, it would provide all-weather road communication between Dar es Salaam and the interior—as it bye-passes certain sections of the present road which are through country where improvement to first class traffic standards would be difficult and costly. It would also entail only one crossing of the Ruvu river and valley which is estimated to cost in the region of £50,000. A further development in the road system would be the extension of this road beyond Morogoro to join the Kilosa-Iringa road at some point intermediate between those places.

A general outline of the programme of work now proposed is attached as Appendix C.

2. IMPROVEMENTS TO AERODROMES.—At present, most of the aerodromes in the Territory have only grass runways. The machines now operating the internal air services are a good deal heavier than those in service before the war and they are consequently often unable to use the existing runways, especially during the rainy season when air transport is most required. It is proposed, therefore, to improve all aerodromes sited near administrative headquarters by the construction of at least one runway which can be used all the year round. Funds are also required for the installation of radio-telephone apparatus where necessary, the construction of additional buildings, waiting rooms, stores, etc., and the purchase of plant for maintenance purposes.

3. TELE-COMMUNICATIONS.—As stated in paragraph 7 of the Outline, the development of tele-communications was considered by a special sub-committee of the Post-War Planning Committee. After a detailed examination of the various proposals submitted to it, the following development programme was drawn up:—

						£
(i)	Development of Main Trunk Telephone System	...	...	...	...	127,400
(ii)	Development of Telegraphs, Minor Trunks and Telephone Exchanges	...	...	...	...	75,000
(iii)	Ten Post Office Wireless Stations	...	...	...	...	16,400
						218,800

Notes.—(i) and (ii) Tanganyika is becoming telephone-minded and the demand for quick and efficient communication continues to increase. This is evidenced by the number of applicants who are awaiting telephone installations and by the steadily increasing revenue derived from this service. The programme includes urgently required extensions to the existing exchanges at Dar es Salaam and Tanga and makes provision for the installation of completely new automatic exchanges at Mwanza, Moshi and Arusha.

It is also considered that the modernization of the Territory's telegraphic net-work is long overdue and that mechanical aids to the more speedy disposal of traffic should replace the old and cumbersome method of morse keys and sounders on the main channels. Provision has accordingly been made for the introduction of teleprinters on these circuits.

(iii) The developments described above will mean the isolation of certain of the smaller offices from the main net-work and the installation of wireless equipment at these stations will be necessary to bring them into the communication system.

III.—SOCIAL SERVICES

1. PUBLIC HEALTH.—See paragraphs 32 to 35 of the Outline. A further review of the development of public health services has recently been undertaken by the present Director of Medical Services and a summary of his recommendations is attached as Appendix D. These recommendations have been endorsed by the Commission.

2. EDUCATION.—See paragraph 36 of the Outline. The fall in the value of money since 1939 and other factors have rendered obsolete the Central Education Committee's estimates of costs. This is clearly shown by the fact that even the reduced estimates of expenditure for 1946 are as much as £40,000 in excess of the figure the Committee gave in 1939 for the tenth year of its programme. It is evident, therefore, that the position must be re-examined and the Committee's proposals must be modified in the light of prevailing economic and financial conditions. A summary of the present requirements will be found at Appendix E.

3. TRAINING OF EX-SERVICEMEN.—It is estimated that this scheme will cost £34,500 for the three years 1946-1948, and it is considered that it should be financed from the regional allocation under the Colonial Development and Welfare Vote.

4. LOANS TO MUNICIPALITIES FOR AFRICAN HOUSING.—See paragraph 37 of the Outline. It is unlikely that the present shortage of houses for Africans in the larger townships, particularly Dar es Salaam, will be made good within a reasonable time without Government intervention and assistance. The problem is first being tackled in Dar es Salaam where the shortage is most acute. Here a pilot scheme is being carried out to ascertain the types of houses best suited to meet local conditions and requirements. It is considered that it will be possible to let these houses at an economic rent sufficient to cover all costs provided that funds for their construction can be obtained at a low rate of interest. It is also hoped that a scheme can be adopted whereby the occupant becomes the owner of the house after having made an appropriate number of payments in respect of "rent", thus encouraging him to take a personal interest in its proper maintenance. To this end the houses are being so constructed as to enable a greater part of the maintenance to be carried out by the householder's own labour.

The experience gained through the working of the pilot scheme will enable a larger scheme to be embarked upon and it has been decided that the most satisfactory way of financing such a scheme will be by means of a loan to the municipality at a low rate of interest. The same procedure will be followed in the case of other large townships where it can be shown that similar schemes are necessary.

IV.—MISCELLANEOUS

1. TOWNSHIP DEVELOPMENT.—See paragraph 41 and Appendix C of the Outline. It is considered that the schedule of works given at page 58 of the Outline should be regarded as covering the full ten years of the plan. The following modifications are, however, necessary in order to bring the estimates up to date :—

(a) *Dar es Salaam*—

- (i) Roads—£70,000. The previous figure of £40,000 is inadequate in view of the developments which are anticipated to follow the town planning scheme now in the course of preparation.
- (ii) Water Supplies—£100,000. The necessity for the provision of a new and greater source of supply for Dar es Salaam was only briefly mentioned in the Outline, although the need for considerable expenditure on this work was made clear in the detailed report of the sub-committee. Investigations are still proceeding and, while they have not reached the stage when a concrete scheme can be prepared, they indicate that a suitable supply is obtainable and the above figure may be taken as a token estimate of the cost.
- (iii) Surface Drainage. In view of the comment on roads above, it is estimated that the sum of £100,000 will be required for surface drainage.
- (iv) Miscellaneous. It is considered that the figure of £10,000 for new municipal offices is inadequate. Having regard to present day building costs and the proposal to erect these offices on a new site, the total cost will probably be of the order of £20,000.

(b) *Tanga*—

- (i) Sewage Disposal. Some development of the present sewage system will certainly be required during the period of the plan. It is difficult to estimate whether growth of sewage flow or the extent of building development will require the replacement of the present (temporary) pumping main and outfall by a gravity sewer in accordance with the original design, but this possibility must be envisaged and the cost of the work involved is expected to be in the neighbourhood of £25,000.

Without intensive examination it is not possible to suggest necessary modifications to the remainder of the schedule, and it is considered that the figures given should be adopted with the proviso that they may be subject to radical modification as investigations are carried out and to accord with changing conditions.

It is desired to draw attention to the items of £30,000 for fire services and £125,000 for implementing the town planning schemes mentioned in paragraphs 22 and 23 of the Appendix. The latter, in particular, is an essential part of the development planned for the various townships and without such provision little progress will be possible.

2. PUBLIC BUILDINGS AND WORKS.—See paragraph 42 of the Outline. The programme of work which it is proposed to carry out under this head during the period of the plan may be described as follows:—

- (a) Houses for Government officials;
- (b) Houses for Government African employees;
- (c) Government administrative offices;
- (d) Other Government buildings.

(a) It is estimated that approximately 400 new houses will be required to accommodate the additional staff which is likely to be engaged during the next few years. The average cost of these houses will amount to between £1,500 and £2,000 each. The necessity to provide this accommodation does not require emphasis but it is of interest to note that Government is at present paying at the rate of nearly £2,000 per annum for rented houses in Dar es Salaam alone, in addition to a fluctuating but considerable sum paid in respect of officers who are required to stay in hotels or clubs. A number of single officers are also living two or more to a house, a condition which can only be justified as a temporary measure.

A number of the schemes included in the plan make provision for housing for the staff to be engaged to carry them out. Where this is so, the cost of such housing will be debited to the schemes concerned and not to this head.

(b) As mentioned elsewhere in these notes, provision has been made in the plan for loans to municipalities to enable them to undertake housing schemes for Africans in the larger townships. It is considered that the time has now come when Government should also provide housing for its African employees on a more extensive scale than has hitherto been possible and that a sum of the order of £50,000 should be earmarked for this purpose.

(c) The shortage of Government office accommodation in Dar es Salaam dates back over a period of sixteen years. Recently the problem has grown more acute owing to greatly increased Government activities and it has become necessary to adopt the temporary expedients of renting privately owned accommodation, at a cost of over £2,000 per annum, and of constructing temporary offices; twenty-seven of these offices are now in use and the construction of others is in progress. In addition, most of the existing offices are old German buildings some of which are fast reaching the end of their economic life. In the circumstances it is considered that the construction of a block of modern office buildings of permanent type should be given a place in the development programme. The buildings would be designed to house the central administrative staff of Government, including the Secretariat, Treasury, Labour and allied services and would make provision for a Legislative Council Chamber which the Territory does not possess at present. The construction of this block of buildings would enable the required expansion of Government office accommodation to be effected and, by re-arranging the office space so vacated, it should then be possible to do away with the unsatisfactory expedient referred to above. It is estimated that the cost of these buildings might amount to £150,000, but no estimate related to specific requirements has been made.

Similar conditions, smaller in scale but in some cases more acute, prevail in many up-country stations. Government officers are either accommodated in central district headquarters buildings of the old German "fort" type or

in other offices of various kinds. The advantages of housing them in a single office block are obvious, while pressure on existing office accommodation would be correspondingly relieved. It is considered that a sum of £75,000 could suitably be devoted to this purpose.

(d) Apart from the buildings necessary to fulfil the requirements of the various schemes in the plan, provision must be made for the improvement and extension of a number of existing buildings such as schools, hospitals, police buildings, prisons, etc. The cost involved over ten years may well exceed £200,000.

3. LAND SETTLEMENT.—The financial requirements in respect of land settlement have not as yet been worked out in detail. A Land Settlement Division of the Lands and Mines Department has now been set up and is estimated to cost £8,500 for the remainder of 1946. A token figure of £50,000 has been included in the plan to provide funds for this division for the next three or four years.

4. LAND BANK.—See paragraphs 237 to 244 of the Central Development Committee's report. The establishment of a Land Bank is at present under consideration by Government. The capital which the bank will require is estimated to be in the region of £250,000.

V.—RAILWAYS AND PORTS

A summary of the General Manager's proposals for the development of the railways and ports services is attached as Appendix F. The Commission agrees in principle with the memorandum as indicating the lines along which these services should be developed during the next ten years. With regard to two of the major railway projects, namely a line to the Southern Highlands Province and a link line connecting the Central and the Tanga lines, the Commission accepts the view of the Railways and Ports Advisory Council that they are not ripe for development at present. No provision for them has therefore been made in the plan. They will, however, be kept under review and will presumably be financed by *ad hoc* borrowings if and when their construction becomes a matter of practical importance.

THE PRESENTATION OF THE PLAN ON AN INTEGRATED BASIS

The statement at the end of this Appendix indicates the scale of development expenditure contemplated in respect of each Province, in relation to its population and size. Expenditure on schemes which have been prepared on a Territorial rather than a Provincial basis is shown separately.

2. The following brief notes illustrate the main problems requiring attention in the different Provinces.

LAKE PROVINCE

3. The Lake Province contains a dense human and cattle population and signs of congestion, soil deterioration and increasing aridity are becoming markedly evident over the greater part of it. The position is aggravated by the presence of tsetse fly over wide areas. It is clear that without an early and extensive programme of rehabilitation it will be impossible to maintain conditions at the present level, far less to achieve any improvement or progress. The first step is necessarily a redistribution of population and stock. The agricultural and animal husbandry schemes and plans for the provision of additional water supplies have been designed to this end. Re-afforestation and soil conservation measures will also have to be undertaken on a large scale and the education and health services must be expanded to meet the growing needs of the population. Road communications in the Province are generally of a higher standard than is the case elsewhere in the Territory and no extensive road development programme is necessary.

NORTHERN PROVINCE

4. Two of the main requirements in the Northern Province are the rehabilitation of the over-populated and badly-eroded Mbulu highlands and the provision of additional water supplies in the Masai District. The latter district is the home of a semi-nomadic people who depend on their cattle for sustenance. Their main pre-occupation is therefore with grazing and water. The irregular distribution of water throughout the district and its local unreliability in the dry season have led to the Masai practice of wandering over large tracts of country and their claim to an area some 23,000 square miles in extent, which is very large in proportion to the size of the tribe (about 37,500 in all). This results in continual disputes with the neighbouring tribes who are being forced down from the mountain slopes of Kilimanjaro and Meru owing to pressure of population. The provision of additional and improved water supplies in Masailand will render accessible grazing grounds which are at present unused and will thus free parts of the district for occupation by other tribes.

5. The volcanic nature of the soils in most parts of the Province make road-making a difficult and expensive business and the standard of all the main roads must be raised to enable them to carry the increasing volume of traffic now using them. There is also a demand for increased health and educational facilities, particularly in the heavily populated Arusha and Moshi Districts.

EASTERN PROVINCE

6. The relatively dense population of the Eastern Province lives for the most part in the low-lying coastal region. There is a good deal of fertile land but soil deterioration is evident in many parts and new areas must be opened up for cultivation. Much of the Province is suited to the production of rice, and cotton is a proved crop over most of it.

7. The development programme includes provision for a new first class road linking the capital with the interior and with the Tanga and Northern Provinces. Provision has also been made for the construction of a modern group hospital in Dar es Salaam and for a considerable expansion in educational facilities. The growth of Dar es Salaam township entails the installation of an up-to-date sewerage system and increased expenditure on other municipal services such as roads; drainage and water supplies. Better port facilities must also be provided to handle the increasing traffic passing through the port.

TANGA PROVINCE

8. Expenditure on roads figures largely in the development schemes planned for the Tanga Province. It is intended to provide first class road links with Dar es Salaam and the Northern Province and to raise the standard of a number of other roads. Further educational services are required by all sections of the community, and municipal services in Tanga township must be expanded to meet growing demands. Improved port facilities are also needed.

WESTERN PROVINCE

9. The Western Province is largely covered by *miombo* bush which is infested with tsetse fly and a potential danger from sleeping sickness. Much of the soil is basically poor and about three-quarters of the Province suffers from arid conditions. Additional water supplies are required in a number of areas and development will be based on teaching improved methods of husbandry and providing better health and education services. The construction of the proposed branch line to the Mpanda mineral area should make a material contribution towards the opening up of the Province.

SOUTHERN PROVINCE

10. The Southern Province is an isolated and backward area with considerable potentialities. In comparison with the greater part of the Territory, the coastal and many of the inland areas are well favoured with regard to soil and climatic conditions. At present the lack of sufficient water supplies is a serious handicap to development. Proposals for the extension of medical and educational services are dependent on the improvement of the supply at a number of centres and the removal of population from sleeping sickness areas cannot be undertaken until supplies in new localities are assured. Road communications and port facilities are poor and a considerable increase in both is contemplated.

SOUTHERN HIGHLANDS PROVINCE

11. There is comparatively little scope for the development of native agriculture in the Southern Highlands Province. The majority of the native population is profitably engaged in the production of food supplies to meet the requirements of non-native interests and in the few areas where economic crops can be grown, the existing facilities appear to be adequate. The main lines of development will be directed towards the improvement of communications and the provision of better and more widespread health and education services.

CENTRAL PROVINCE

12. The Central Province is situated in the main plateau region where the rainfall is generally low. Both the human and the cattle population suffer considerable hardship through lack of adequate water supplies and little or no progress or amelioration is possible without extensive improvements in this direction. Soil erosion in an advanced state is present in parts of the Province, due to shifting cultivation and over-grazing, and large-scale conservation measures must be undertaken if more and more land is not to go out of occupation altogether. The expenditure on roads will be devoted mainly to the improvement of the section of the Great North Road running through the Province.

DISTRIBUTION OF SCHEMES BY PROVINCES AND COMPARISON WITH POPULATION AND OTHER RELEVANT STATISTICS

[illegible]

Add unexpended balance to complete schemes not mentioned above for which free grants have already been received

NOTES :

(*) In addition there are 9,500 evacuees and refugees in the Territory awaiting repatriation.

(†) Token figures only, based on proportion of present rates of expenditures.

GENERAL OUTLINE OF THE ROAD DEVELOPMENT PROGRAMME

The development of the road system of the Territory has received consideration in recent years by two different committees—the Central Development Committee in the period before 1940 and the Post-War Planning Committee in 1944. The proposals of the former committee and the financial commitments resulting therefrom were revised by the latter committee, but the full financial implications arising out of this revision were not indicated in its report. It is accordingly necessary to complete the picture of expenditure required and to amend the original proposals in the light of recent developments.

2. Both committees recommend three different stages of road construction, each stage serving a distinct purpose, though each stage is absorbed in the next stage. The first stage is the provision on its final alignment of an adequately formed, drained and hardened earth road with permanent bridging; the second is the addition of stabilized gravel to the earth road surface; and the third is the provision of bituminous surfacing on the gravel. In that order (which is their physical order of priority) each stage serves a different purpose of traffic requirement and the financial provision necessary to achieve it can be considered independently of the other stages.

3. The other important consideration is maintenance. This was not overlooked by the two committees but the Post-War Planning Committee gives no estimate of cost, while the estimate given by the Central Development Committee amounts to less than half the present cost. Without adequate maintenance (and the amount required will vary not only with traffic density but also with the different stages of construction) expenditure on construction will be wasted. The ability to maintain a road must govern the amount to be constructed and, where financial provision is concerned, maintenance must receive the highest priority. The order in which financial provision should be earmarked is therefore:—

- (i) maintenance;
- (ii) hardened earth road construction;
- (iii) stabilized gravel base;
- (iv) bituminous surfacing,

and the maintenance requirement will increase in relation to the amount of traffic and the length of the different stages of construction carried out. This order does not mean that the whole of the earth road system must be reconstructed before any stabilized gravel base or bituminous surfacing is carried out—that would be inconsistent with traffic requirements—but rather that the three stages will be required in the order stated on any road, the first stage preceding the second and third, the time of provision of which will be related to traffic densities.

4. To co-ordinate the proposals of the two committees, it is considered that the following programme of improvements should be undertaken during the next ten years. In drawing up this programme due regard has been paid to

revised estimates of cost and to varying traffic densities, and an endeavour has been made to maintain some relation between what is desirable and what may be possible financially :—

- (a) to the first or hardened earth road stage of construction 3,514 miles of road, in comparison with the 7,551 miles recommended by the Central Development Committee, the 2,890 miles proposed by the Post-War Planning Committee and the 5,500 miles of the present main and grade A road system on which the traffic is appreciable and comparable ;
- (b) to the second or gravel base stage of construction 1,610 miles of road, in comparison with the 2,551 miles recommended by the Central Development Committee, the 900 miles proposed by the Post-War Planning Committee and the 1,500 miles of the present main and grade A road system on which traffic has exceeded thirty vehicles per day continuously ;
- (c) to the third or bituminous surfacing stage of construction 455 miles of road, in comparison with the 2,551 miles recommended by the Central Development Committee, the 900 miles proposed by the Post-War Planning Committee and the 400 miles of the present main and grade A road system on which traffic has exceeded fifty vehicles per day continuously.

5. It has been mentioned previously that the ability to provide maintenance funds will govern the amount and nature of the construction to be carried out. It is evident that the regard of the Central Development Committee to this purpose was insufficient as, without the higher standards of construction it had in view, the present maintenance requirements of the road system—and it is not suggested that they are adequate—amount to £150,000 per annum in comparison with the £60,000 per annum it proposed. The provision of the 900 miles of bituminous surfacing contemplated by the Post-War Planning Committee would have increased the maintenance requirements by about £90,000 per annum, although no indication of such an additional amount being required was reflected in the Committee's report. At the present time the maintenance provision for the 5,500 miles of main and grade A roads varies from £36 per mile to £14 10s. per mile, a variation which is inconsistent with the amount of traffic using both grades of road ; the minimum requirement to maintain either grade of road adequately is £25 per mile.

6. The maximum maintenance requirement for the earth road stage will vary with the amount of the traffic up to the point when it is more economic to provide the stabilized gravel stage. Assuming such stabilized gravel will cost £500 per mile, as contemplated by the Post-War Planning Committee, and that capital charges on that amount would be 3 per cent, that is, £15 and that minimum maintenance cost of the gravel is £50 per mile (an amount sufficient to replace up to one inch of surface wear each year) the minimum annual cost of the gravelled road would be £65 per mile, and that minimum would be the maximum amount which it would be economical to expend on maintenance of the previous hardened earth road. Similarly assuming that bitumen surfacing would cost £1,000 per mile as contemplated by the Post-War Planning Committee and that capital charges on that amount would be 3 per cent, that is, £30 per mile and minimum maintenance costs permitting the re-sealing of the bitumen surfacing once in four years were £120 per mile per annum, the minimum annual cost of the bitumen surfaced road would be

£150 per mile and that minimum would be the maximum amount which it would be economical to expend on maintenance of the previous stabilized gravel. The maintenance costs then will range with the traffic densities:—

- (a) for hardened earth roads from £25 to £65 per mile;
- (b) for stabilized gravel from £50 to £150 per mile;
- (c) for bituminous surfacing £120 per mile.

7. Applying these rates to the programme proposed, the *average* maintenance requirement during the ten years at the minimum maintenance rates would be:—

	£
5,000 miles hardened earth road at £25	125,000
700 miles stabilized gravel road at £50	35,000
300 miles bitumen surfaced road at £120	36,000
	£196,000

8. Taking account of the provision made at present for the maintenance of Grade B and township roads (though it is improbable that this provision will suffice) and allowing for construction and maintenance plant to be used for either purpose, the whole maintenance requirement for a period of ten years is approximately as follows:—

	£
Grade "B" and township roads, £38,000 per annum	380,000
6,000 miles of principal roads, £200,000 per annum	2,000,000
	£2,380,000

9. The financial implications of the above proposals may be summarized as follows, the construction costs given being those contained in the Post-War Planning Committee's report:—

New Construction	Per mile £	Total £
(a) 3,514 miles realigned as necessary and improved to "hardened earth" standard, of which	@ 400	1,405,600
(b) 1,610 miles are further improved by the addition of a stabilized gravel base course of surfacing and of which	@ 500	805,000
(c) 455 miles are further surfaced with bitumen	@ 1,000	455,000
		2,665,600
Staff	200,000	
Plant	80,000	
Transport	90,000	
		370,000
Major Structures (1)		300,000
Total construction cost		3,335,600
Cost of additional maintenance over ten-year period (2)		880,000
		£4,215,600

(1) This item has been inserted as the unitary rate per mile of £400 for the average cost of construction to hardened earth standard (although adequate to include the cost of realignment where necessary, reconstruction of and additional culverts, minor bridges, and formation) will not meet the cost of any major structure or specially difficult construction.

(2) *Maintenance* (average figures over period of programme) :—

	£	£
(a) 5,000 miles @25 per mile	125,000	
(b) 700 .. @50	35,000	
(c) 300 .. @120	36,000	
	£196,000	
Say ten years		2,000,000
Existing township and grade "B" roads		380,000
		2,380,000
<i>Less</i> maintenance provided at present @ £150,000 per annum		1,500,000
		£880,000

10. A schedule is attached showing specific roads which, after a careful survey of the present position, it is considered should be included in the different categories of improvement.

11. As regards the technical organization of the work, to which special importance is attached, particular insistence is placed on getting the road on its final and best alignment before any improvements are carried out. Standards of design and construction have been under study and discussion in consultation with neighbouring territories, and general agreement on the principal standards has been reached. It may be mentioned that a 24 feet wide formation is intended throughout, of which only the central 16 feet width will be bitumen surfaced, while standards of curvature, super-elevation, grade, etc., will be such as to permit of safe speeds of 50 to 60 miles per hour wherever conditions are such that this can be obtained without excessive cost. The methods of soil stabilization and compaction will be employed so as to permit the maximum use of locally available materials, and modern earth moving and bitumen plant will be made use of as appropriate. A nucleus of laboratory apparatus and road plant has been obtained and experimental work to determine the most satisfactory technique under varying conditions is in progress.

SCHEDULE

A.—Roads to be improved to bitumen standard at £1,900 per mile

Road	Province	Miles	Cost £
Namanga-Arusha (part of Great North Road)	Northern	75	142,500
Arusha-Moshi-Taveta (Kenya Border)	"	75	142,500
Dar es Salaam-Msata-Muheza (part of Dar es Salaam-Tanga Road)	Eastern and Tanga	180	342,000
Msata (on new Dar es Salaam-Tanga Road)—Morogoro...	Eastern	75	142,500
Tanga-Muheza-Korogwe	Tanga	50	95,000
		455	864,500

B.—Roads to be improved to stabilized gravel surface at £900 per mile

Road	Province	Miles	Cost
Arusha-Dodoma-Tunduma (part of Great North Road)	Northern, Central and Southern Highlands	750	675,000
Tanga-Moa (Kenya Border)	Tanga	50	45,000
Morogoro-Ruaha River (towards Iringa)	Eastern	100	90,000
Ifakara-junction with Morogoro/Ruaha/Iringa road ...	"	120	108,000
Moshi/Arusha Road—Ngare-Nairobi	Northern	35	31,500
Lindi-Masasi	Southern	100	90,000
		1,155	1,039,500

C.—Roads to be improved to hardened earth standard at £400 per mile

Road	Province	Miles	Cost
Makuyuni (on Great North Road)—Oldeani	Northern	55	22,000
Ngare-Nairobi-Oldonyo Sambu	"	27	10,800
Farm roads, Ngare-Nairobi	"	17	6,800
Oldeani-Mbulu-Babati	"	128	51,200
Korogwe-Himo	Tanga	165	66,000
Mombo-Lushoto-Magamba	"	26	10,400
Tanga-Pangani	"	33	13,200
Branch roads from Lushoto to Mlalo, Shume and Bum-buli	"	80	32,000

C.—Roads to be improved to hardened earth standard at £400 per mile—(contd.)

Road	Province	Miles	Cost
Kilosa-Mvomero-Morogoro	Eastern	90	36,000
Ifakara-Mahenge	"	24	9,600
Bagamoyo-junction with new Dar es Salaam-Tanga road	"	20	8,000
Dar es Salaam-Lindi	Eastern and Southern	400	160,000
Lindi-Mikindani	Southern	42	16,800
Masasi-Songea	"	288	115,200
Iringa-Ruaha River (towards Kilosa)	Southern Highlands	85	34,000
Makongolozi-Lupa (towards Itigi)	"	30	12,000
Mwanza-Musoma	Lake	130	52,000
Bukoba-Uganda border	"	53	21,200
Lusahunga-Ruanda Urundi border	"	90	36,000
Musoma-Kenya border	"	70	28,000
Bukeni-Ibolongero	Western	51	20,400
		1,904	761,600

	£
Schedule A	864,500
Schedule B	1,039,500
Schedule C	761,600
	2,665,600
Staff	200,000
Plant and Transport	170,000
Major structures	300,000
Total construction cost	£3,335,600

SUMMARY OF THE DIRECTOR OF MEDICAL SERVICES' PROPOSALS FOR THE DEVELOPMENT OF PUBLIC HEALTH SERVICES

These proposals are based on the assumption that hospital services should normally be related to the concentration of the population, for the greater the concentration of population, the greater the amount of sickness and, therefore, the more the need for hospital bed accommodation. Analysis of the existing bed distribution does not appear to show a significant relationship to any particular population quotient or to the medical qualifications of the officers in charge or the subordinate staff serving the variety of institutions designated as hospitals. It therefore seems desirable to contemplate some re-orientation of future development if, as is proposed, we should build an inter-related standardized hospital system rather than a relatively unsupervised system of isolated posts, where the less well equipped and less skilled staff are expected to meet the same medical contingencies as are the fully equipped institutions.

2. It is not proposed that any of the existing "hospital" facilities should be closed down, but it is considered that they should in some instances be upgraded for the purpose of providing medical centre facilities commensurate with the population concentrations, and in other instances fitted into a controlled rural medical and health service.

3. The programme envisages "pilot establishments" in the nature of rural district medical centres and rural health centres in Sukumaland (perhaps the Kwimba District), and in the Moshi and Rungwe Districts. The first two are proposed as new establishments and the other as the re-organization and expansion of an existing establishment, inadequate to meet the needs of the community it now serves. Experience with these must govern their duplication elsewhere, as well as the provision of "orbital" centres consisting of standard hospitals with such attached ancillary units as experience and opportunity may justify. To contemplate the multiplication of such centres would be the height of folly and would merely lay claim to a preconceived notion of what the medical share of the Colonial Development and Welfare grant should be. Personnel must be trained to man these establishments for the fulfilment of this purpose. Elasticity of plan must, therefore, govern their duplication elsewhere. In the meantime other district facilities must be retained on a repair and maintenance basis, despite their acknowledged deficiencies, in order that orderly development may be possible.

4. The need for decentralization of administration and responsibility is overdue and one of the highest priorities in the development programme is the proposal to re-group medical administrative personnel for expanded areas. This will involve the creation of four new posts of Area Assistant Director of Medical Services—to be drawn from the present grade of Senior Medical Officer with an annual salary increase of £200 at the prevailing scales. The posts of Senior Medical Officer (Clinical) and Senior Medical Officer (Health)

can be covered off by the residual complement of Senior Medical Officers who are qualified for the respective duties without additional cost. However, the creation of four more Senior Medical Officer posts to meet the clinical and health needs of the areas will involve an annual recurrent increase at the present scales of between £4,000 and £4,400. The proposed new establishment will also require non-technical administrative and clerical staff. In this connection it should be noted that there is no existing provincial establishment and that the *ad hoc* nature of the staff now employed is based largely on factors of expediency and the availability of personnel and funds.

5. Hospital designing is an expert professional task which is beyond the scope of the normal Colonial medical or public works department. It is considered, therefore, that a firm of reliable and experienced hospital architects should be engaged for a term of years to study our local hospitals problem in relation to the costs of construction, the climate and racial complexities to be met and our financial limitations. The object would be to produce standard plans and designs for the various types of hospital and ancillary construction necessary to serve a long-term programme of new and replacement buildings. This is considered to be a project of the highest priority.

6. It has been indicated that our medical service at present cannot be considered to be more than a token service. Within the framework has been included a health service even more diminutive than that qualification implies. If the modern concept of public health is to be accepted as comprising the guiding and advisory purposes of preventive medicine concerned with urban, rural and labour health problems, we must face the issue of providing an adequately manned health service considerably in excess of our present absurdly small branch of the department.

7. Consideration has not been given in this programme to major malaria control works because these are essentially problems of flood control and drainage. Likewise water supply, sewerage and sewage disposal projects, although there are substantial medical reasons for their being undertaken, are in the nature of a public utility service and therefore not a fair charge against medical development.

8. Municipal health services, as an integral part of the development of local government, have not been specifically considered, but provision has been made for the "medical" personnel for these urban health services; for the present policy of seconding government personnel to organized local government bodies will no doubt continue until such urban authorities are in a position to assume these responsibilities.

9. Medical laboratory services have not been specifically considered as they are believed to be an essential constituent of normal medical development associated with hospitals and medical training. Token provision already exists for laboratory services on central, provincial and hospital levels, but these must be expanded beyond the token stage and integrated into the general scheme, less as a convenience as in the past and more as an essential to medical and health functions.

10. The inter-territorial research efforts concerned with trypanosomiasis have not been included in the programme, but the territorial epidemiological activities hitherto undertaken under the direction of the Sleeping Sickness

Officer are included in the proposals for the extension of the health services. The same proposals also cover the functions of industrial hygiene now in token operation under the specialist seconded to the Labour Department.

11. The various projects contemplated may be classified as under :—

(a) Medical administrative re-organization.

(b) Health service development.

(c) Hospital service replacement and extension :—

(i) general hospitals ;

(ii) training centres ;

(iii) special hospitals.

(d) Rural medical centre development :—

(i) new projects ;

(ii) adaptation of existing hospital and dispensary services.

12. The projects which, it is proposed, should be included in the development programme and their estimated cost are tabulated in the attached schedule. This is divided into two phases, (a) reorganization ; and (b) extension.

(a) *Reorganization*.—This has been carefully considered as representing the essential foundations in the development of the medical service. If the initial capital expenditure alone may be accepted as the criterion, these thirteen items will fall within the limit of the first £1,000,000 to be spent on development. If, however, this must include the calculated annual costs over ten years, items 1 to 6 inclusive will amount to approximately £2,000,000, and the total cost for this phase will involve the expenditure of something slightly in excess of £3,000,000. To rationalize this, however, it should be appreciated that if our medical estimates for 1946 remain constant over the next ten years, we shall have expended a sum of approximately £4,000,000 without the benefit of any progressive expansion. Furthermore, it must also be realized that the additional expenditure for medical development will involve an additional annual expenditure of approximately Sh. 1/- per head of population over the same period of time.

(b) *Extension*.—This has been added as a further stage of development, without consideration of estimated costs, for the purpose of illustrating the principle upon which it is conceived that our programme could progress. It indicates the immensity of the task to obtain even a sub-optimum standard of medical and health services in a Territory such as this.

(c) Detailed consideration has not been given to what might be termed a third phase of the programme—expansion—for the obvious reason that we have already far exceeded the financial bounds that lie within reasonable expectation at this stage. From this point on it may be expected that, with the objective still being the sub-optimum, experience will justify the establishment of new standard hospitals and rural medical centres in areas hitherto not served or where new concentrations of population may have developed.

SCHEDULE OF PROJECTS (a)—RE-ORGANISATION

No.	Project	Estimated Capital Cost	*Estimated recurrent cost in salaries over 10 year period	Present annual salary cost (1945)	Total additional nett cost	Remarks
1.	Consulting Architect	£ —	£1,500 p.a. for 3 to 5 years	—	7,500	Required for designing DSM. group hospital and training establishment and the standardization of hospital and medical centre design.
2.	Standard group hospital and training establishment, Dar es Salaam	480,000	450,000	19,276	737,240	400-600 beds at £800 per bed. Replacement and extension of European Hospital, Sewa Haji Hospital, maternity clinic and students' training establishment.
3.	Nurses' training establishment, Tanga	10,000	30,000	315	36,850	New project for training African nurses.
4.	Extension of Territorial health services	—	1,210,000	26,311	946,900	Present position grossly inadequate.
5.	Reorganization of provincial medical administration	—	188,000	12,685	61,000	Present administration inefficient and too dependent on central direction. Re-organization will create four medical areas involving four new posts.
6.	Standard group hospital, Lindi	80,000	150,000	2,265	207,350	Existing hospital outmoded, unsuitable and inadequate. New hospital will be a medical centre for Southern Province with 200 beds and will be capable of extension when necessary.
7.	Rural medical and health centre—Sukumaland (Buildings) (Transport)	80,000 5,000	170,000	—	255,000	New project additional to existing establishments. To serve and expand the medical and training needs of central Sukumaland. 6-12 health centres, 200 hospital beds. Proportion may be financed from native treasury funds.
8.	Rural medical and health centre—Bungwe District	85,000	170,000	1,790	237,100	One of the more populous areas in the Territory now receiving a token service. To replace and extend existing hospital training and health services as at 7 above.
Carried forward		740,000	2,375,500	62,642	2,488,940	

* Excluding cost of housing, travelling and passages and training of local personnel for extension of health services.

SCHEDULE OF PROJECTS—(a) RE-ORGANISATION (contd.)

No.	Project	Estimated Capital Cost	*Estimated recurrent cost in salaries over 10 year period	Present annual salary cost (1945)	Total additional nett cost	Remarks
	Brought forward	£ 740,000	£ 2,375,500	£ 62,642	£ 2,488,940	
9.	Rural medical and health centre—Moshi District	85,000	170,000	—	255,000	To fill an outstanding deficiency in a populous area. As at 7 above. New project additional to Moshi town.
10.	European wing, Tabora hospital ...	10,000	No material change in existing staff	—	10,000	Replacement of existing unsuitable and obsolete structure. 25 beds.
11.	Special hospital, tuberculosis ...	30,000	60,000	—	90,000	New establishment required because Kibongoto serves essentially only the Chagga. 100 beds extensible to 200. To serve the sanatorium needs of the Central Railway line.
12.	Leprosy settlements	20,000	50,000	—	70,000	"Pilot" establishment for 100 patients to extend and improve the principles applied at Mwakete. Estimate of £200 per bed may be excessive but this is purpose of pilot establishment from which to learn. A proportion of the costs may be recoverable from native treasury funds.
13.	Special hospital, mental	30,000	60,000	—	90,000	New project to replace present unsuitable ex-enemy mission establishment at Lutindi and serve the needs of the Tanga Railway line. 100 beds extensible to 200.
		915,000	2,715,500	62,642	3,003,940	

*Excluding cost of housing, travelling and passages and training of local personnel for extension of health services.

SCHEDULE OF PROJECTS.—(b) EXTENSIONS

No.	Project	Estimated Capital Cost	*Estimated recurrent cost in salaries over 10 year period	Present annual salary cost (1945)	Total additional nett cost	Remarks
1.	Rural medical and health centres in the following districts :—Shinyanga, Mikundani, Pangani, Maswa, Mbulu, Njombe, Kondoa, *Bukoba, Biharamulo, Singida.	£	£	£	£	Essentially an extension and renovation project affecting existing group IV and V "hospitals". *Bukoba : in view of the population factor in this area it is probable that there will be justification for upgrading the Bukoba town hospital and constructing a new rural district hospital elsewhere.
2.	Standard group hospital, Mwanza. 400 beds	160,000	310,000	4,630	423,700	To renovate and enlarge the existing hospital to serve as a central general hospital for Sukumaland and the Lake Province.
3.	Special hospital, tuberculosis, Kibongoto	30,000	60,000	2,654	63,460	Replacement and extension of the existing temporary construction. 100 beds extensible to 200.
4.	Standard group hospital, Mbeya	...	...	...	...	To enlarge and extend the present hospital to serve as a central general hospital for the Southern Highlands Province. 100 beds extensible to 200.
5.	Rural medical and health centres Rufiji District Kahama District Songea District	...	...	...	...	
6.	Leprosy settlements	...	...	...	...	

*Excluding cost of housing, travelling and passages and training of local personnel for extension of health services.

Appendix E

SUMMARY OF EDUCATIONAL REQUIREMENTS AFRICAN EDUCATION

It has been calculated that, over a ten-year age group (8 to 18), there are now some 1,506,000 children of school-age in the Territory. In theory it is desirable that educational facilities should be provided to enable at least the following percentages of the respective age groups to attend school at any one time :—

	Per cent
Elementary age group (standards 1 to 4)	100
Middle age group (standards 5 to 6)	20
Secondary age group (standards 7 to 10)	4
Post-secondary education (standards 11 and 12 and other courses above standard 10, including higher education at Makerere)	1

To achieve this target, 777,000 children would require to be at school in 1946. Allowing for an annual population increase of 2 per cent, this figure would rise to 947,000 by 1956.

2. The actual number of children at school at present is estimated to be 112,000, that is, there is a shortfall on the target of 665,000. In order to ensure that this figure does not increase during the next ten years, provision must be made to absorb the increase in population. In other words, the number of children who must be catered for will increase from 112,000 in 1946 to 282,000 in 1956. Even then this "holding" plan will enable only 15.4 per cent of the children of school-age to attend school ten years hence, compared with the 7.5 per cent being educated at present.

3. The average recurrent cost of providing educational facilities on the limited basis described above is estimated at £23 per pupil per annum. Expenditure on this basis for 1946 would amount to £308,000 for 112,000 children and would rise to £776,000 for 282,000 in 1956. It is estimated that the total recurrent cost of the holding plan over the ten-year period would be £5,552,000. In addition, capital expenditure of the order of £250,000 would be necessary during this period.

4. The provision made for African education in the 1946 estimates is £280,000; made up as follows:—

	£
From general revenue	165,000
Additional contribution from general revenue for 1946 only	60,000
From native treasuries	55,000
	£280,000

The basic contribution from local resources can therefore be taken as £220,000 per annum or £2,200,000 over the period of the plan. The financial position may thus be summarized as follows:—

	£
Total recurrent cost of holding plan	5,552,000
Less basic contributions from local resources	2,200,000
	£3,352,000
Add capital expenditure required	250,000
Total estimated deficit	£3,602,000

5. African education in Tanganyika has been in the doldrums for the past fifteen years. Government and native authority expenditure which had risen to £111,000 by 1931 fell to £84,000 in 1932 and to £79,000, £74,000 and £72,000 in the succeeding three years. It is true that there has been an appreciable increase in the amount allocated to this service since then, but it has been out of all proportion to the growing needs of the Territory. It is this lack of development over a number of years which renders the present position so difficult and any attempt to make up the leeway so expensive. Even to expand educational facilities in conformity with the probable increase in population involves the provision of funds on a scale which is quite beyond the Territory's present resources.

6. Expenditure on education is rightly considered to be a form of capital investment. Much of the expenditure in other fields is likely to be sterile or at any rate to be less productive than it should be so long as the population remains illiterate. Literacy is one of the elementary techniques for making the factors of labour and production more effective. There is also the insistent demand of the Africans themselves for a more rapid expansion of educational services; this demand is a growing one and cannot be ignored. On the other hand the Commission has been obliged to view the problem in the light of the funds available for development as a whole. These funds are limited and the Commission is firmly of the opinion that large sums cannot be spent on education if it means curtailing the development of the natural resources of the Territory on which the people depend for their very existence. After careful consideration, therefore, it has reluctantly come to the conclusion that the amount to be devoted to education in the development plan should not exceed £1,905,000. Of this sum, it is proposed that £1,250,000 should be allocated from the Colonial Development and Welfare grant and the balance of

£655,000 from local resources, in addition to the basic expenditure of £220,000 per annum which is being incurred at present. This will reduce the estimated shortfall on the holding plan to £1,697,000 as shown below :—

	£	£
Estimated shortfall		3,602,000
Less allocation from Colonial Development and Welfare grant	1,250,000	
Contribution from Territorial revenue	600,000	
Contribution from native treasuries (representing an approximate 2 per cent per annum increase on their present contribution)	55,000	
		<u>1,905,000</u>
Nett deficit ...		<u>£1,697,000</u>

7. The Commission does not feel itself competent to advise as to how this nett deficit is to be made good. It is understood that the position is at present under active consideration by Government and that the matter will shortly be referred to the Secretary of State.

INDIAN EDUCATION

8. At present Indian education costs £47,000 per annum gross less approximately £3,000 per annum paid in school fees. If grants-in-aid to community-owned schools are to be increased to the standards now prevailing in Kenya and the schools are to be expanded to absorb an estimated annual increase of 5 per cent in the school population, a total recurrent expenditure of £469,000 in excess of the present expenditure must be provided during the next ten years. Requirements for capital expenditure during this period will amount to £163,000.

EUROPEAN EDUCATION

9. European education costs £44,000 per annum gross at present. Fees amount to £9,000 per annum. On the assumption that all European assisted schools (chiefly Greek and Dutch) are grant-aided to an extent sufficient to bring them up to the standard of the Government primary schools and that the present school population of 800 rises to 1,000 in 1951 and 1,100 in 1956, a total recurrent expenditure of £220,000 in excess of the present nett expenditure must be provided during the next ten years. Requirements for capital expenditure during this period will amount to £80,000.

10. To sum up, it is estimated that the following minimum additional expenditure must be incurred during the period of the plan to provide school facilities for all non-African children who need them.

	Capital £	Recurrent £	Total £
Indian ...	163,000	469,000	632,000
European ...	80,000	220,000	300,000
Total ...	<u>243,000</u>	<u>689,000</u>	<u>932,000</u>

11. The Commission considers that this additional expenditure cannot be met from the funds available for development and is of opinion that it should be borne by the communities themselves, by means of a general increase in school fees and the imposition of an education tax or rate.

SUMMARY OF THE GENERAL MANAGER, RAILWAYS, PROPOSALS FOR THE DEVELOPMENT OF THE RAILWAYS AND PORTS SERVICES

The proposals for the development of the Railways and Ports Services are based on the following assumptions:—

- (i) that the aim of Government policy will be to ensure that the transport services of the Territory are performed at the least possible real cost;
- (ii) that each form of transport will normally be required to raise its costs by user charges—departures from this principle should be made only in special cases where a different course can be shown to be in the public interest and any assistance given should be in the form of a specific subsidy for a specific period;
- (iii) that the policy of Government and employers (including the Railways and Ports Services) will be directed towards raising the productivity of all workers;
- (iv) that a consistent policy as regards the level of real wages will be applied to all forms of transport;
- (v) that the merits of a railway system in having reserve capacity in time of war deserve special consideration;
- (vi) that these Services, with Territory-wide obligations, can reasonably use nett earnings on the system as a whole to meet any losses on marginal projects in the early years;
- (vii) that an agreement will be reached with the Kenya/Uganda system so that the Tanganyika Railways will carry all transit traffic between the east coast of Africa on the one hand and the Lake and Northern Provinces on the other, except where it can be shown that the use of the Kenya/Uganda system is in the interests of Tanganyika; and
- (viii) that any investment shown to be desirable if the Tanganyika Railways retain their separate identity will be considered equally desirable even if the administration is merged in an East African transport system as envisaged in Colonial 191.

2. In considering the capital needs of these Services it will be convenient to divide them into three groups:—(a) the Road Services, (b) the Ports Services, and (c) the Railways Services (including Lake Services).

3. *The Road Services* were started to meet war-time needs at the end of 1940 and now extend over about 1,000 miles of arterial routes. They are playing an important part in securing a full integration of the long distance surface transport of the Territory. Receipts and expenditure are approximately in balance. The large extent to which operating costs vary with traffic enables expenditure to be adjusted to earnings fairly rapidly. It is the policy of the administration to continue the existing services and to extend them

in 1947-1948 to a number of arterial routes linked to the rail services. Adequate provision is being made for depreciation so that modern vehicles can readily be acquired to replace the older vehicles. Capital requirements will be confined to workshops, workshop equipment, service depots, staff running rooms, etc., and are unlikely to exceed £10,000 per annum for the next five years and £5,000 per annum thereafter.

4. *The Ports Services* include the coastal ports, the ports on Lake Victoria and Kigoma on Lake Tanganyika. The Lake ports have been reasonably well developed for the traffic offering, but some capital expenditure (probably about £10,000 in all) will be necessary at minor ports on Lake Victoria. The coastal ports comprise the two major ports of Dar es Salaam and Tanga (recognized as "berth ports" by the Shipping Conferences) and a number of lesser ports. Of these Lindi and Mikindani are occasionally used by ocean-going ships, while the others are used only by coasters, schooners and dhows. Of the smaller ports only Lindi and Mikindani have, or are likely to have during the next decade, a volume of traffic such as would justify substantial expenditure. The wharfage facilities at Lindi are almost non-existent and the provision of an adequately equipped wharf for coasters and lighters is a matter of importance. The cost would be of the order of £50,000. At Mikindani some expenditure on improved facilities is required but the extent and form of the work will be governed by the policy finally adopted for coastal shipping services. Expenditure can be provisionally estimated at £40,000.

5. The future of the ports of Dar es Salaam and Tanga remains to be considered. The quay at Tanga can be used only by lighters and dhows. At Dar es Salaam the facilities are a little better and coasters can use the wharf at certain stages of the tide. Of the cargo passing through the ports, about 85 per cent at Dar es Salaam and about 95 per cent at Tanga is lightered. The tonnage passing through them in recent years has varied between 180,000 and 270,000 tons at Dar es Salaam and 110,000 and 190,000 at Tanga. Tonnages of this order are normally considered sufficient justification for better facilities in the form of deep-water berths. If the Territory is to progress at all, the tonnages will continue to increase and as is usual at all ports serving ocean-going vessels, it seems desirable to make a beginning with the long-term development of these ports.

6. Because of the income accruing direct to the lighterage companies before 1942, it is not possible to quote comparable figures of total income of the Ports Services before then. Port receipts, expenditures and nett earnings during the past four years have been:—

Year	Receipts	Working Expenditure	Renewals	Balance-Nett Earnings
	£	£	£	£
1942	161,817	114,468	10,000	36,349
1943	156,173	128,014	10,000	18,159
1944	212,791	142,450	10,000	60,341
1945	213,815	159,183	10,000	44,632

The present annual debt charges total £29,276. On the assumptions that (i) the loans are redeemed at the end of the year when first due, (ii) the amount in each sinking fund is then used to repay part of the debt, and (iii) the balance is borrowed on the basis of 3 per cent interest and 1 per cent

contribution to a sinking fund, the annual charges will be approximately as follows:—1947 and 1948, £29,300; 1949 to 1951, £28,200; 1952, £21,300; 1953 and after, £21,100. The debt charges are now only 14 per cent of the receipts and by 1953 they will be only 10 per cent. The charges levied on port users are not considered in any way onerous and the future nett revenue position can be described as very healthy.

7. The works already mentioned for the minor ports and the works required to modernize the two major ports so that efficient services may be given to users are as follows:—

	£
(a) Lindi—improved facilities	50,000
(b) Tanga—berth for coasters and lighters	100,000
(c) Mikindani—improved facilities (provisional)	40,000
(d) Dar es Salaam—dredging of channel	160,000
(e) " —Two deep water berths... ..	400,000
(f) Tanga—deep water berth	200,000
(g) Miscellaneous works at all ports	50,000
Total	<u>1,000,000</u>

With interest at 3 per cent and sinking fund charges at 1 per cent, this programme would involve annual debt charges of £40,000, while the additional provision for depreciation would be of the order of £20,000 annually with possibly £5,000 per annum in additional maintenance charges, a total of £75,000 per annum. Against that there would be savings, in respect of the provision, maintenance and operation of lighters and the handling of cargo, of the order of £35,000, leaving a nett annual increase of £40,000. This could be met without difficulty from the existing nett revenue plus such expansion as may reasonably be expected before the works are completed. In this connection it may be noted that as regards the Ports Services the administration is in a strong monopoly position and modest additions to the charges could, if necessary, be made with negligible detriment to the economy. This does not mean that the administration should pursue an extravagant policy as regards the ports. On the contrary, the aim will be a high standard of technical and economic efficiency at as low a cost as proves possible.

8. *The Railways Services.*—From the relatively simple fields of road transport (where costs can be adjusted fairly quickly to changes in traffic volume) and the Port Services (where the administration's monopoly position enables it to raise all its costs) we now turn to the more complex problems of the Railways (and the ancillary water transport) Services. A fair volume of rail traffic is subject or may be subject to competition from air and road services; the administration is in a monopolistic position as regards the balance of the traffic but in many cases an increase in the charges would be detrimental to the economy. For these reasons the tariff cannot be varied quickly in any attempt to maintain a standard revenue. On the expenditure side it is recognized that rail costs are relatively fixed and it is most difficult to adjust expenditure as traffic falls except to a limited extent. The capacity of these Services to undertake capital expenditure for the expansion of the rail services depends on the ability to earn nett revenue, that is, to maintain a satisfactory gap between revenue on the one hand and expenditure on the other. Since April 1943, working expenditure has been increasing faster than revenue and unless this trend can be changed the Railways Services will soon

be unable to meet existing commitments and certainly could not incur capital expenditure except on projects which would show immediate and certain returns. It must be admitted that conditions in the last few years have been most abnormal. It is hoped that some sort of stability in traffic, prices and wages can be reached in two or three years. Some endeavour must be made to assess the future prospects if capital is not to be spent blindly. An attempt has accordingly been made to assess revenue and expenditure in 1949, which will be regarded as the first reasonably normal year.

9. The revenue position will be examined first. The chief sources are earnings from passenger and goods traffic. Passenger traffic is by far the most difficult to predict. There has been a big increase since 1942, caused by the movements of military personnel. Demobilization will end about October 1946, and direct military traffic will then be reduced to a trickle. Spending by His Majesty's Government (in the United Kingdom) has, however, resulted in a much increased volume of money being in the hands of military personnel and their dependents. This and the prosperity from high war-time activities (for example, timber and sleepers for the military) and from higher prices for all produce have led to increased travel. The shortage of consumer goods has also led to money being diverted to travel. Some of these factors may persist for some years. The chief determinant of the volume of travel is the national income and it must not be forgotten that, in physical terms, that has probably increased by less than 20 per cent since 1939. It is certain that passenger earnings will fall substantially in the next few years. It is considered that it would be unrealistic to expect revenue more than 50 per cent in excess of the average pre-war levels. By 1949, it is optimistically estimated that receipts will fall to about £150,000 before the secular upward trend asserts itself in a gradual rising revenue as the national income expands under progressive policies. The average annual rate of increase after 1949 is estimated at £5,000.

10. Revenue from the less elastic goods traffic does not vary so widely and it is considered that a tolerably accurate estimate can be made from past results. The amount of direct military traffic carried has been small and the principal military traffic (timber and sleepers) has paid low rates. War conditions and high prices have however led to the temporary expansion of various commodities and the general food shortage has led to a considerable volume of cross haulage seasonally. Against this, war conditions have prevented any expansion of investment in the Territory. On the whole it is considered that there may be a modest recession to a revenue of about £600,000 in 1949 when the secular upward movement should again assert itself.

11. By 1949 the receipts from other resources can realistically be estimated at £40,000. The total receipts of the Railways Services by 1949 are thus estimated as follows:—

	£
Passengers	150,000
Goods	600,000
Miscellaneous	40,000
Total	£790,000

The average annual rate of increase after 1949 will probably be of the order of £30,000.

12. It is necessary now to turn to the working expenditure in 1949 with the traffic volumes in accordance with the estimated level of earnings. Working expenditure is very difficult to estimate at the present time with uncertain wage and price levels. The estimates which follow are made on the following assumptions—(i) wages and salaries will remain at present levels, (ii) cost of living allowances will be about 80 per cent of present levels, (iii) the cost of imported stores will fall to about 10 per cent below 1945 levels, (iv) locally produced stores will fall to about 20 per cent below 1945 levels, (v) coal will fall to Shs. 50/- per ton compared with Shs. 67/60 in 1945, and (vi) staff will be reduced to the greatest extent practicable at the lower traffic levels. It will be observed that provision has not been made for any substantial advance in individual productivity. It is proposed to tackle this problem with the greatest vigour during 1947, when adequate technical and supervisory staff will be available, but it must be said that present conditions are not conducive to spectacular progress being made. The importance of this question is fully appreciated, but it would be unwise, at this stage, to assume a high rate of improvement in the next few years.

13. The cost of maintaining Way and Works at the low traffic density of the Tanagnyika Railways varies only to a very small degree with variations in the traffic. In addition costs are largely composed of supervisory staff salaries and wages for unskilled labour which (apart from cost of living allowances) have not been greatly affected by war-time conditions. From about £84,000 in the early war years expenditure has risen to about £100,000 in 1945. Though provision has been made for £110,000 in 1946 it is estimated that expenditure need not exceed £95,000 in 1949.

14. Expenditure on maintenance of Rolling Stock has shown a steady increase from about £60,000 in the 1939/41 period to £102,500 in 1945. Costs have risen almost directly with the increase in locomotive carriage and wagon mileage. Economies, which might have been effected because of the increased volume of work have been offset by the higher cost of stores and a higher wage level for artisans. It is estimated that expenditure can be reduced to £90,000 in 1949.

15. Expenditure under the Locomotive Operation vote has risen from about £60,000 in the 1939/41 period to practically £160,000 in 1945. Of the £100,000 increase, the increase in the value of fuel is about £76,000. It is most difficult to forecast the price of coal but it has been assumed that the landed cost in 1949 will be Shs. 50/- per ton compared with Shs. 67/60 in 1945. The cost of wood-fuel is to some extent in the hands of the Administration. The unit cost has risen substantially during the war years because of increased wages, rations and improved conditions. Individual output has not increased but some allowance has been made in the estimates for better results. It is estimated that by 1949 expenditure will be of the order of £108,000.

16. The expenditure of the Traffic Department has risen steadily from about £55,000 in 1939/41 to £82,000 in 1945 and is estimated to be over £88,000 in 1946. The increase has been caused by the employment of extra station and train staff to meet the higher traffic needs and by improved conditions and allowances to staff. These latter will remain, but an overhaul of the staff to meet the reduced traffic requirements is estimated to bring expenditure to £77,000 by 1949.

17. Because of staff shortage expenditure on the cost of management, Accounts Department, Railway Audit and Stores Departments fell from 1939 to 1942, but since then there has been a steady increase to above the pre-war level. The 1946 estimates make provision for an expenditure of £44,000. Little change can be expected in the expenditure of the Stores and Accounts Departments while the costs of management may increase because of the necessity in a large and growing organization of centralizing certain activities such as staff and welfare matters. On the whole it is estimated that by 1949 expenditure will be about £40,000.

18. It is estimated that expenditure on the Lake Services will be about £14,000 in 1949. Miscellaneous and non-departmental expenditure was practically constant at £40,000 during the years 1939 to 1942, but has increased rapidly since, as cost of living allowances, rations and other war-time provisions have been charged to this head. In due course the allowances, when consolidated, will be charged to the appropriate heads, but it has been considered desirable to include them here to facilitate comparison with past years. With the fall in staff and probably some small fall in the cost of living it is estimated that expenditure under this head will be £106,000 in 1949.

19. The estimated working expenditure may be summarized as under :—

	£
Way and Works	95,000
Maintenance of Rolling Stock	90,000
Locomotive Operating Costs	108,000
Traffic Department	77,000
Cost of Management, Stores and Accounts Departments, etc.	40,000
Lake Services	14,000
Miscellaneous	106,000
	£530,000

With the stabilization of traffic and costs envisaged in 1949, it is considered that the increase in the working expenditure required to deal with traffic represented by an annual increase of £30,000 in earnings would be about £10,000 per annum spread over the various heads.

20. Finally, consideration can be given to the debt charges for the Railway Services. As the finances are arranged these are a prior charge on revenue before provision is made for depreciation. Debt charges for 1946, 1947 and 1948 will be about £280,000. Existing loans become due for redemption in 1948, 1951 and 1952. It is assumed for the purposes of estimation that the loans will be redeemed at the end of the year in which redemption is first possible and that the Exchequer loan terms will be revised at the end of 1948. The terms of borrowing will be assumed to be 3 per cent per annum (though the Kenya/Uganda Railways have recently obtained 2½ per cent terms) and 1 per cent contribution to sinking fund (the propriety of the contribution will be considered later when discussing the question of depreciation). On the basis outlined debt charges will be approximately as follows :—1949 to 1951, £189,400; 1952, £143,600 and 1953 and onwards £141,600.

21. Because of lack of factual data about the administration's assets and the uncertainty of the price level during the next two decades, it is difficult to estimate the provision which should be set aside for depreciation of wasting assets. During the past few years it has been possible to make provision at the rate of £150,000 per annum. Apart from rolling stock and other equipment now on order the assets are in such a condition that large scale renewals will not be necessary in the next five, and possibly ten, years. By the time that renewals are necessary on a substantial scale, it is hoped that the price level will be reasonably stable. In the meantime, of course, it is essential that reasonably adequate provision should be made. On the basis of the figure of £125,000 at pre-war prices it would be reasonable to estimate that provision should now be of the order of £175,000 to £200,000 per annum. At this stage it is desirable to discuss the allocation to sinking funds for the redemption of capital. From 1953, when all the existing loans will have been converted the annual contribution to sinking funds will be approximately £35,000. While a public utility must maintain its capital intact and make provision from time to time for the repayment of capital which has ceased to earn revenue, there is no case for a prudently managed public utility with honest accounting methods (publication of full accounts should ensure this) to make provision for repayment of capital and for depreciation in respect of the same assets. To do so places an unreasonable burden on present day users. It is proposed, therefore, to assume that with the sinking fund provision envisaged the depreciation allowance, even at future prices, need not exceed £150,000 per annum.

22. An attempt can now be made to summarize the outlook for the Railway Services. The estimated revenue, working expenditure, debt charges, depreciation provision and nett earnings (in thousands £) are estimated below for the years 1949 to 1953.

	1949	1950	1951	1952	1953
(1) Estimated Revenue	790	820	850	880	910
(2) Working Expenditure	530	540	550	560	570
(3) Debt Charges	189	189	189	144	142
(4) Depreciation Provision	150	150	150	150	150
(5) Total Costs (2) + (3) + (4)	869	884	889	854	862

On the basis of these estimates the Railway Services will not be meeting their costs fully (once the war-time bloat passes) until 1952 when the last substantial relief in debt charges becomes effective. There remains for consideration the one important remaining factor in the nett revenue position—the transit traffic to and from the Northern and Lake Provinces. The nett receipts from this Tanganyika traffic which should, in the view of the writer, accrue to the Tanagnyika Transport Services, can be estimated at present at £70,000 per annum. If this matter can be adjusted the deficit of £79,000 is reduced to £9,000 in 1949 (that is, in the post-war trough) and the nett earnings become £11,000 in 1950, £31,000 in 1951, £96,000 in 1952, £118,000 in 1953 and thereafter increase at about £20,000 per annum. The urgent necessity for an equitable solution of the Lake and Northern Provinces problem can readily be seen. If no change can be effected the Railway Services could contemplate a modest investment programme only from about

1952 whereas, if a satisfactory solution can be reached, an earlier development of these Services, or a reduction in rates, could be undertaken as soon as resources are available. For the purposes of considering the investment policy it will be assumed that a solution, satisfactory to Tanganyika, is reached.

23. Consideration can now be given to the type of investment in transport resources which is likely to be of benefit to the Territory by reducing the total cost of transport. As regards railway extensions there are, so far as can be foreseen at present, only three major projects which are likely to reduce transport costs during the next ten to fifteen years. These are: (a) the proposed Mpanda mineral line, (b) the proposed line to the Southern Highlands (ultimately to join the Rhodesian system), and (c) the connecting line between the Central and Tanga lines. The other possible fields for investment are improvements to the existing transport facilities and additional housing of staff. Before considering the position of new lines the needs of the existing services can be considered.

24. For the traffic envisaged in 1949 the transport facilities are generally adequate. As old stock, machines, houses and other buildings wear out they will be replaced by modern equipment. Such replacements will be financed from the Renewals Fund and it is expected that during the next fifteen years the demands on the fund will be well below the allocations being made to the fund. As traffic increases beyond 1949 some capital expenditure will be required from time to time to deal with increased traffic needs and to provide specialized equipment for new traffic flows. The only major requirement evident at present is rolling stock for the movement of cattle for the proposed new meat factory. This and other works will probably require expenditure of the order of £40,000 spread over 1947 and 1948. After this the needs can be roughly estimated at £20,000 per annum.

25. The provision of housing is a matter of social policy rather than of transport policy. The railway administration has always provided quarters for all grades of staff at points where accommodation cannot be rented. For all practical purposes staff are housed at all points except Dar es Salaam and Tanga. In these two townships, and to a lesser extent at Morogoro, Dodoma and Mwanza, most of the staff on Railways Local Service terms find their own quarters. While there is a great deal to be said for the transport administration in a primitive country housing all its staff, the encouragement of individual ownership (subsidized if necessary) and the planning of subsidized housing estates by municipalities or by Government housing agencies have much to commend them. It is assumed that the Railways will continue to house all staff outside townships and that some contribution will be made to the housing of its staff in townships. Pending the clarification of policy a token capital provision of £10,000 is proposed annually from 1947.

26. The first of the new extensions to be considered is the proposed Mpanda line, about 130 miles long. The survey work is just being started. With the arrangements now under consideration for the provision of track it is probable that the line can be constructed for about £700,000. Whether or not the line should be constructed depends on (a) whether there is a reasonable probability that sufficient minerals are available to carry, and (b) whether they can be successfully produced under the market conditions ruling during the period when the cost of the line is being amortized. The success

the branch line will depend solely on the mineral traffic. For the purposes of this memorandum it will be assumed that the traffic will meet all the costs of the branch and all the additional costs on the main line so that the forecast nett revenue already made will remain unchanged. In practice it is hoped that the traffic will make a reasonable contribution to nett revenue. Capital expenditure of £700,000 will be required over the period 1946 to 1949.

27. The Southern Highlands line which is envisaged would extend (as a purely Tanganyika project) from Morogoro on the Central Line to Mbeya, a distance of 400 miles. From Mbeya it could be extended to the Rhodesian system at or near Broken Hill. So extended it would form a strategic line of great value to all British territories in Africa. The Mbeya-Broken Hill section could reasonably be subsidized by all interested parties. In this memorandum consideration will be given only to the economic aspects of a line to Mbeya to meet Tanganyika needs. Such a line at the cost now ruling would entail an expenditure of £2,800,000. Debt charges (3 per cent for interest and 1 per cent for sinking fund) would total £112,000 per annum. Additional working expenditure would be of the order of £20,000. With the provision made towards a sinking fund it is considered that only a nominal provision for depreciation of £3,000 per annum is necessary in the early years. This brings the total annual cost of the line to £135,000. During 1945 the administration earned £101,000 on its road services to the Southern Highlands. The proposed railway would also serve the Kisaki area south of Morogoro and the Ulanga District. On the other hand road transport would still be required to serve certain points reached by the road services, which would lie off the railway route. On the whole it is considered that earnings of the order of £85,000 could be obtained from the line as soon as opened and new traffic, not possible with road transport, could be created. There was a loss on road services in 1945, but it is now clear that over-provision was made for vehicle depreciation so that it can be said that costs equalled the operating revenue. At the present traffic level the line would increase transport costs by £50,000 per annum, but would have great potentialities for good for the whole economy and the loss in the early years could well be met from the nett earnings on the system as a whole. With other claims on the capital likely to be available to the Territory, this project cannot have high priority, but it should remain subject to periodic review.

28. The link line between the two railways is envisaged as running from Morogoro to Korogwe. The line would be about 150 miles long and is estimated to cost £1,000,000. Debt charges (3 per cent interest and 1 per cent sinking fund) would total £40,000 per annum. Additional working expenditure would be about £8,000. With the provision made towards a sinking fund it is considered that only a nominal provision of £2,000 per annum need be made for depreciation. This would bring total costs to £50,000. Earnings on the existing Morogoro-Korogwe road service totalled £34,000 in 1945, while £11,000 was earned by schooners carrying traffic between the two lines, giving a total revenue of £45,000. Under normal conditions this traffic may fall to £25,000. While the linking of the two lines would not enable the administration appreciably to reduce its rolling stock, departmental savings totalling about £10,000 would be effected because of the concentration of workshops and stores facilities. The nett loss on the line in its

early years is unlikely to exceed £15,000 per annum. While not of the highest priority this project also should be reviewed regularly in the light of the traffic volume available when conditions are reasonably normal.

29. The total possible expenditure envisaged so far totals about £6,000,000. If expenditure on transport facilities on this scale is likely to be sanctioned it is necessary to consider the rate at which the works should be carried out. Too rapid spending means technical inefficiency and possibly too great an allocation of man power for the economic health of the Territory. The heavy capital expenditure on railways in the late twenties had a most disturbing effect on the economy. The present railway system of 1,356 miles has been developed spasmodically over about 40 years (ignoring the slow beginnings on the Tanga line). The railway extensions envisaged total 680 miles and it is considered, as a common-sense approach not based on any detailed examination, that the Ports and Railways capital works programme could well be spread over fifteen years. The programme can, of course, be speeded up or slowed down as circumstances may demand. By planning over a long period adjustment to the programme can usually be made without difficulty. In this connection it may be noted that there will be many claims on available capital. In assessing these claims it may well prove necessary to relegate the projects for the Southern Highlands and link lines to a late stage in the fifteen years programme.

30. The provisions made earlier for working expenditure and depreciation will be considered as adequate to cover maintenance and depreciation on the assets represented by expenditure on open lines. The debt charges on the proposed capital expenditure on open lines would rise from nothing to about £16,000 by 1961. The Mpanda line has been assumed to be entirely self-liquidating, but as making no contribution to nett revenue. On the link line and the Southern Highlands line annual losses have been conservatively estimated at £15,000 and £50,000, though it is expected that a modest increase in traffic would largely have reduced this by the times the lines are open for traffic. Is this total charge of about £81,000 within the capacity of these services? The margin of nett revenue earned by these Services as a whole will, it has been estimated, exceed this amount by 1952 and by 1960 when the programme is completed the system could (as has been calculated in paragraph 22) earn a nett revenue of about £280,000, substantially in excess of the possible loss from the extensions proposed. It should be stressed that these estimates are based on steady growth. In practice economic development appears to move in phases; there is a quick development of a certain type of economy and then slow progress or stagnation. Except possibly in the production of cotton, groundnuts and grain by peasant growers, the Tanganyika economy shows little signs of stagnation.

31. Having examined the costs of these extensions and the capacity of the Services as a whole to bear the costs it is necessary to consider the extent to which nett revenue should be used for this purpose. If these services are able in their monopoly position to earn revenue in excess of costs such excess could be used for a variety of purposes, for example, (a) reducing rates, (b) improving services, (c) establishing reserves, (d) for direct expenditure on capital improvements, (e) for meeting the loss on extensions desirable in the public interest, and (f) for improving staff conditions. As regards the latter, staff conditions and wages have been greatly improved in recent years and

on the whole are in advance of other employers. With the probable retention of present cash rates and the almost certain fall in the price level staff will, in fact, automatically receive an advance in real wages. As regards (d) it is considered that only relatively small amounts of nett revenue should be ploughed back for capital expenditure. There is only limited scope for spending money on improved services. It will be desirable to establish reserves and to reduce rates, but the estimated claim of about £81,000 out of a total of £280,000 is not considered an unreasonable amount to devote to the loss on new extensions which will have great potentialities in the development of Tanganyika. These lines would not only assist the progress of the areas served, they would benefit the whole Territory by speeding up and simplifying the long distance movement of the working population and by facilitating the exchange of products between all the main producing areas in the Territory.

32. In all the circumstances outlined, the above programme is submitted as a realistic attempt to give the Territory the transport framework which it needs if it is to progress to the maximum extent practicable.